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Cook.

care of others, should have perished in such a miserable manner for want of being properly supported by them. The perseverance with which he pursued every object which happened to be pointed out as his duty was unequalled. Nothing ever could divert him from what he had once undertaken; and he persevered in the midst of dangers and difficulties which would have daunted persons of very considerable strength and firmness of mind. For this he was adapted by nature, having a strong constitution, inured to labour, and capable of undergoing the greatest hardships. His stomach bore without difficulty the coarsest and most ungrateful food; and he submitted to every kind of self-denial with the greatest indifference. To this strength of constitution he joined an invincible fortitude of mind, of which the circumnavigation of New Holland, and his voyage towards the South Pole, furnish innumerable instances. He was master of himself on every trying occasion; and the greater the emergency, the greater always appeared his calmness and recollection; so that in the most dangerous situations, after giving proper directions to his people, he could sleep soundly the hours that he had allotted to himself. That he possessed genius in an eminent degree cannot be questioned: his invention was ready, and capable not only of suggesting the most noble objects of pursuit, but the most proper methods of attaining them. His knowledge of his own profession was unequalled; and to this he added a very considerable proficiency in other sciences. In astronomy, he became so eminent, that he was at length enabled to take the lead in making the astronomical observations during the course of his voyages. In general learning he likewise attained to such a proficiency as to be able to express himself with clearness and propriety; and thus became respectable as the narrator, as well as the performer of great actions. He was an excellent husband and father, sincere and steady in his friendship, and possessed of a general sobriety and virtue of character. In conversation he was unaffected and unassuming; rather backward in pushing discourse, but obliging and communicative to those who wished for information; and he was distinguished by a simplicity of manners almost universally the attendant of truly great men. With all these amiable qualities, the Captain was occasionally subject to an hastiness of temper, which has been set forth in its utmost extent, if not exaggerated by some, tho' but few, who are not his friends: but even these, as well as others, when taking a general view of his character, are obliged to acknowledge that he was undoubtedly one of the greatest men of his age.

Captain Cook is distinguished as an author by an account of his second voyage written by himself. His first voyage, as well as that of several other navigators, had been recorded by Dr Hakesworth; but on the present occasion it was not judged necessary to have recourse to any other than the pen of the author himself; and his journal, with a few occasional alterations, and being divided into chapters, was sufficient for the purpose. The style is clear, natural, and manly; and it is not improbable, that even a pen of more studied elegance could not have made it appear to more advantage. When it appeared, which was not till some time after the author had left England, the book was re-

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commended by the accuracy and excellency of its charts, and by a numerous collection of fine engravings done from the original drawings of Mr Hodges.

We cannot conclude this article without taking some notice of the honours paid to our celebrated navigator after his death, both by his own countrymen and those of other nations. Perhaps indeed it may be said with justice, that foreigners hold his memory in an estimation unequalled even in this country; a remarkable proof of which occurs in the eulogy upon him by Michael Angelo Gianetti, read in the Florentine academy on the 9th of June 1785, and published at Florence the same year. It is said also, that one of the French literary academies proposed a prize for the best eulogium on Captain Cook; and many poetical testimonies of his merit appeared in our own language. The Royal Society of London resolved to testify their respect to him by a medal, for which purpose a voluntary subscription was opened. A gold medal was given to such of the fellows as subscribed 20 guineas and a silver one to those who subscribed smaller sums; and each of the other members received one of bronze. Those who subscribed 20 guineas were, Sir Joseph Banks president, the Prince of Anspach, the Duke of Montague, Lord Mulgrave, and Messrs Cavendish, Peachey, Perrin, Poli, and Shuttleworth. Many designs were proposed on the occasion; but the following was that which was actually struck. On one side was the head of Captain Cook in profile, with this inscription round it, JAC. COOK OCEANI INVESTIGATOR ACERRIMUS; and on the exergue, REG. SOC. LOND. SOCIO SUO. On the reverse is a representation of Britannia holding a globe, with this inscription round her, NIL INTENTATUM NOSTRI LIQUERE; and on the exergue, AUSPICIIS GEORGII III. One of the gold medals struck on this occasion was presented to the king, another to the queen, and a third to the prince of Wales. Another was sent to the French king on account of the protection he had granted to the ships; and a second to the empress of Russia, in whose dominions they had been treated with every expression of friendship and kindness. Both these great personages condescended to accept of the present with marks of satisfaction. The French king wrote a handsome letter to the Society, signed by himself, and undersigned by the Marquis de Vergennes; and the Empress of Russia commissioned Count Osterman to signify to Mr Fitzherbert the sense she had of the value of the present, and that she had caused it to be deposited in the museum of the Imperial Academy of Sciences. As a further testimony of the pleasure she derived from it, the empress presented to the Royal Society a large and beautiful gold medal, containing on one side the effigies of herself, and on the other a representation of the statue of Peter the Great. After the general assignment of the medals, which took place in 1784, there being a surplus of money still remaining, it was resolved by the president and council, that an additional number of medals should be thrown off, to be disposed of in presents to Mrs Cook, the Earl of Sandwich, Dr Benjamin Franklin, Dr Cook provost of King's College Cambridge, and Mr Planta. At the same time it was agreed that Mr Aubert should be allowed to have a gold medal of Captain Cook on his

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paying for the gold, and the expence of striking it, in consideration of his intentions to present it to the King of Poland.

During the two visits of the ships at Kamtschatka, Colonel Behm, the commandant of that province, had bestowed, in the most liberal manner, every kind of assistance which it was in his power to bestow; and such was the sense entertained by the lords of the admiralty of the kindness he had shewed, that they determined to make him a present of a magnificent piece of plate, with an inscription expressive of his humane and generous conduct. The inscription was drawn up by Dr Cook, and afterwards submitted to the opinion and correction of some gentlemen of the first eminence in classical taste.

Sir Hugh Palliser, who had all along displayed an uncommon respect and kindness for Captain Cook; likewise displayed his regard for his memory in a most eminent manner. On his estate in Buckinghamshire he constructed a small building with a pillar, containing the character of Captain Cook, which is given at the end of the introduction to the last voyage. This was drawn up by the Honourable Admiral Forbes, admiral of the fleet, and general of the marines, to whom Captain Cook was known only by his merit and extraordinary actions.

Amidst all these expressions of unavailing praise, it was not forgotten to show some essential service to the widow and family of our celebrated navigator. A memorial for a pension of L. 200 *per annum* was given in to the king from the commissioners of the admiralty, and signed by the Earl of Sandwich, Mr Butler, the Earl of Lisburne, Mr Penton, Lord Mulgrave, and Mr Mann. His Majesty complied with the request of the memorial, and the grant was passed thro' the usual forms with all possible speed. By this L. 200 *per annum* were settled on the widow during life; and L. 25 a-year on each of her three sons. After her death the L. 200 was to be divided between her children; a fourth was allotted to Captain King, and the remaining fourth to Mr Bligh and the representative of Captain Clerke.

The last honour paid to the memory of Captain Cook was the granting a coat of arms to the family, which was done by patent on the 3d of September 1785: and of this we have the following description. Azure, between the two polar stars: Or, a sphere on the plane of the meridian, north pole elevated, circles of latitude for every ten degrees, and of longitude for every 15; shewing the Pacific ocean between 60° and 240° west, bounded on one side by America, and on the other by Asia and New Holland; in memory of the discoveries made by him in that ocean, so very far beyond all former navigators. His tract thereon is marked with red lines; and for crest, in a wreath of the colour is an arm imbowed, vested in the uniform of a captain of the Royal Navy. In the hand is the Union Jack, on a staff proper. The arm is encircled by a wreath of palm and laurel.

Cook's Discoveries.—The number of countries discovered by Captain Cook, and which had never before been visited by any European, is very considerable; but it was a remarkable property of our celebrated navigator, that, wherever he touched, every thing relative to the place was determined with such accuracy

and precision, that all former accounts seemed to go for nothing, and the discovery to belong entirely to Captain Cook. Thus it was not unusual with him to make discoveries in places already well known; and thus his voyages have conveyed a vast fund of knowledge perfectly original. Though the accounts of the different places, therefore, at which he touched, are particularly given under their names in the order of the alphabet, we shall in this article endeavour to join the whole together in such a manner as to give the reader some idea of the benefit which has accrued to science from voyages attended not only with much expence and labour, but even with the loss of the celebrated navigator's life.

When he set out in the Endeavour in the year 1768, the first place touched at was Madeira. Here Mr Banks and Dr Solander, besides some additions to the

science of botany, discovered undoubted marks of the island having a volcanic origin. On leaving this place, they found it necessary to touch at Rio de Janeiro for provisions, and, during the run thither, the commander had an opportunity of determining the cause of the luminous appearance of the sea. On the 29th of October they observed that the water frequently emitted flashes like lightning, though much smaller; but such was their frequency, that eight or ten of them were visible almost at the same moment. This appearance

they found, both at this time and afterwards, to arise from a small kind of animal with which the water abounded. While staying at Rio de Janeiro, a melancholy observation was made of the prodigious waste of human lives with which the working of the Portuguese gold mines was attended, no fewer than 40,000 negroes being annually imported for this purpose, none of whom, it seems, survive the labour of the year; and our navigator was informed, that in 1766 this number was so far short, that they were obliged to draught 20,000 more from the town of Rio itself. Proceeding from thence to the southern coasts of America, he had an opportunity of determining a question of great importance to navigation, viz. whether, in sailing to the Pacific Ocean, it is better to pass through the straits of Magellan, or to double Cape Horn and sail through those of Le Maire? From Captain Cook's voyage it appears, contrary to the opinion of former navigators, that the latter is the preferable passage.

Through this he was only 33 days in coming round the land of Terra del Fuego from the east entrance of the strait of Le Maire till he had advanced about 12 degrees to the westward, and three and a half to the northward, of Magellan's straits. During all this time the ship scarcely received any damage, though if he had passed the other way he could not have accomplished his passage in less than three months, besides immense fatigue to his people and damage to the ship. In these stormy regions, however, he experienced the same inconveniences felt by former navigators; such a sea being met with off Cape Diego, that the ship frequently pitched her bowsprit under water. Here also

the excessive cold and mutability of weather in these southern regions was experienced in such a manner as had nearly proved fatal to some of the gentlemen who sailed along with him. Dr Solander, Mr Banks, Mr Monkhouse the surgeon, and Mr Green the astronomer, with their attendants and servants, set out on a botanical

Cook's Discoveries.

Madeira, a volcanic island.

Luminous appearance of the sea occasioned by animals.

Vast number of negroes destroyed by the working the gold mines.

Best passage into the Pacific Ocean thro' the straits Le Maire.

Excessive storms and cold in the southern regions.

Cook's
Discoveries.

cal expedition while the ship lay at anchor in the bay of Good Success. It was then the middle of summer, and the morning on which they set out was as mild and warm as it usually is in the month of May in England: but having ascended a mountain for the purpose of botanizing, they were surprised by such storms of snow and hail that they could not get back that night. Dr. Solander, who warned them of the danger, that people when about to perish with cold were seized with a violent inclination to sleep, was the first who seemed likely to fall a victim to it; and it was not in the power of his companions to keep him from sitting down for that purpose. He was awaked in a few minutes; but during this short interval his feet had become so much diminished by the contraction of the vessels, that his shoes fell off from them when he was again made to rise. Even these dreary regions, however, are not without inhabitants, whom our voyagers justly concluded to be the lowest of the human species. Indeed, considering the little convenience they have, it is wonderful how they can resist the severity of the climate, for they are almost without clothing; they dwell in miserable hovels, which admit both the wind and snow or rain; and they have not any utensil for dressing their food. Nevertheless, these miserable creatures, as they appeared to our navigators, seemed to have no wish to possess more than they enjoyed; and they were absolutely indifferent about every thing that was offered them, except large beads which they would take as ornaments. Hence Dr Hawkesworth, who wrote the account of the voyage, concludes, that these people may be on a level with ourselves with respect to the real happiness they enjoy.

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Miserable
state of the
natives.7
Island discovered
between Cape
Horn and
Otaheite.8
Transit of
Venus observed.

On the 26th of January 1769 our navigators left Cape Horn; and from that time to the first of March, during which they run no less than 660 leagues, met with no current by which the ship was affected. Hence it is probable, that during all this time they had never been near any land, the currents of the ocean being usually met with in the neighbourhood of islands. Several islands, however, were discovered before they reached Otaheite, on which they bestowed the names of Lagoon Island, Thrumb-cap, Bow Island, the Groups, Bird Island, and Chain Island. All these seemed to be inhabited, and were covered with a most delightful verdure; which appeared to the greater advantage, as our navigators had for a long time seen no land but the dreary hills and wastes of Terra del Fuego. Having arrived at Otaheite, they set about observing the transit of Venus over the sun, which indeed was the main purpose for which the voyage had been undertaken. The anxiety which they underwent when the time of the expected phenomenon approached may easily be imagined, as the whole depended on the circumstance of a clear sky, which though more readily to be expected in that climate than one more to the northward, was still a matter of uncertainty. In consequence of some hints which had been given by the Earl of Morton, Captain Cook determined to send out two parties to different places to make the observations; by which means there would be a chance of success, even if those at Otaheite should fail. For this purpose he sent Mr Gore in the long boat to Eimeo, a neighbouring island, along with Mr Monkhouse, Mr Banks, and Mr Sporing, who were furnished with proper instruments by

Mr Green the astronomer. Messrs Hicks, Clerke, Pickersgill, and Saunders, were sent in the pinnace to a convenient spot to the eastward of the main observatory, where they were likewise ordered to make observations with such instruments as they had. The day on which the transit happened was the 3d of June 1769, when they had the satisfaction to see the sun rise without a cloud; and as the weather continued equally clear throughout the day, there was the best opportunity of making the observations in a proper manner. All of them saw an atmosphere or dusky cloud round the planet, which disturbed their observation, and probably caused them to differ from each other more considerably than they would otherwise have done. According to Mr Green, the times of ingress and egress of the planet were as follow:

	MORNING.	h.	min.	sec.
First external contact,	-	9	25	42
First internal contact, or total immersion,	-	9	44	4
	AFTERNOON.	h.	min.	sec.
Second internal contact,	-	3	14	8
Second external contact, or end of the transit,	-	3	32	10

From these observations the latitude of the observatory was found to be $17^{\circ} 29' 15''$ S. and the longitude $149^{\circ} 32' 30''$ W. of Greenwich. Several curious remarks were made both on the country itself and on the inhabitants. Mr Banks, in an excursion up the country, discovered many traces of volcanic fire; the stones, like those of Madeira, had evidently the appearance of being burnt, and the very clay on the hills had the same appearance. The natives, though addicted to thieving, appeared in general harmless and friendly, and very ready to supply the ship with necessaries in exchange for such things as they wanted. The articles on which they set the greatest value were hatchets, axes, large nails, spikes, looking glasses, and beads. They were also fond of fine linen, whether white or printed; but an axe of the value of half a crown would buy more provisions than a piece of cloth of the value of 20 shillings. They are very fickle and inattentive; so that it was not possible to engage them to pay any regard to the worship of the Deity which they saw performed before them; nor would they attend to any explanation of it that was given them. They are not, however, destitute of a religion of their own; and are particularly careful of the repositories of the dead, which they will not allow to be violated on any account. Of this Captain Cook had an instance, when some of his people offered to take down an inclosure of one of these repositories. They were violently opposed by the natives, who sent a messenger to acquaint them that they would never suffer any such thing; and the only insult that ever was offered to an Englishman by the people of this island was on a similar account. From Otaheite our navigators carried with them Tupia, formerly high priest of the country, and prime minister to Queen Oberea. From his practice it appeared, that the priests of Otaheite, as well as elsewhere, take care to place themselves a step nearer the Deity than the common people, and to use the deceptions too frequently put in practice by such mediators. While on board the Endeavour, he frequently prayed to his god *Tane* for a wind; and according to

Cook's
Discoveries.[8]
Otaheite
a volcanic
island.9
Account of
the natives.

Cook's
Discoveries.10
Society
Islands dis-
covered.11
Wretched
appearance
of the king
of Bolabo-
la.12
Oheteroa
island dis-
covered.13
Comet of
1769 ob-
served.

his own account never failed of success. This, how-
ever, he took care to ensure; for he never began his
prayers till he perceived the breeze already on the wa-
ter, and so near that it must reach the ship before they
could well be ended. It was observed likewise of the
people of Otaheite, that they had their bards or min-
strels, who went about the country with musical instru-
ments. The band whom they saw at this time con-
sisted of two players on flutes and three drummers;
the latter accompanying the flutes with their voices.
Their songs were made extempore, and the English
themselves were generally the subject.

From Otaheite our navigators sailed towards a neigh-
bouring island named *Tetburua*; but finding it small,
low, and without any settled inhabitants, the Captain
chose rather to direct his course towards Huaheine and
Ulietea, which he was informed were well inhabited.
These had never been visited by any European ship:
but the inhabitants though peaceable and friendly,
were very slow and cautious in trading, so that the
Captain was obliged to bring out his hatchets to mar-
ket; a commodity which he had hoped might have
been concealed from those who had never seen an Eu-
ropean ship before. On his arrival at Ulietea he found,
by the discourse of Tupia, that the inhabitants of a
neighbouring island named *Bolabola* were of such a
martial disposition as to be the terror of those of Hua-
heine, Ulietea, and others, insomuch that he appre-
hended great danger to our navigators should they
touch at an island which the Bolabola men had lately
conquered. This, however, had so little effect upon
Captain Cook, that he not only landed on the island
already mentioned, but took possession, in his Majesty's
name, of Bolabola itself, together with Ulietea, Hua-
heine, and another named Otaha, which were all vi-
sible at once. During their stay here they paid a visit
to Opoony, the formidable monarch of Bolabola;
whom, to their surprise, they found a feeble wretch,
withered and decrepid, half blind with age, and so
stupid that he seemed scarce to be possessed of a com-
mon degree of understanding. About these islands
they spent six weeks, bestowing upon them the name
of the *Society Isles*, on account of their being so near
to each other. They are six in number, Ulietea, Hua-
heine, Bolabola, Otaha, Tubai, and Maurua. The
smaller ones in their neighbourhood are Tetburua, Ei-
meo, Tapoamano, Oatara, Oporuru, Tamou, Toa-
hoatu, and Whennuaia.

Leaving the Society Islands, which are situated be-
tween Lat. 16. 10. and 16. 55. S. and between 150.
57, and 152. W. from the meridian of Greenwich, they
fell in with the island of Oheteroa, situated in S. Lat.
22. 27. and W. Long. 150. 47.; but this was found
to be destitute of any harbour or safe anchorage, and
the disposition of the inhabitants so hostile that they
could not by any means be conciliated, so that no
attempts were made to land. From Tupia Captain
Cook learned that there were several islands in the
neighbourhood, which our navigator conjectured to
be Boscawen and Keppel's Islands, discovered by Cap-
tain Wallis; but without spending more time in
exploring these, he set sail to the southward in search
of a continent.

Our voyagers left Oheteroa on the 15th of August
1769, and on the 30th had a view of the comet which

appeared that year; its tail subtending on an angle of
42 degrees. This proved a new source of apprehen-
sion to Tupia, who instantly cried out, that as soon as
it was seen at Bolabola, the people of that country
would attack those of Ulietea, who would undoubt-
edly be obliged to fly with precipitation to the mountains
to save their lives. On the 6th of October they dis-
covered land, which from its size, and the enormous
mountains observable on it, was supposed by the gen-
tlemen on board to be part of *Terra Australis incognita*;
but on farther examination it was found to be part of
New Zealand. Here the inhabitants were found to
speak a dialect of the language of Otaheite, so that
they could understand Tupia, and he them; yet so
extremely hostile were their dispositions, that not the
smallest intercourse could be held with them; nor
could any thing necessary for the ships be procured
excepting wood: so that the name Captain Cook
thought proper to bestow on this part of the country
was *Poverty-Bay*. By the natives it is called *Tauneroa*,
and lies in S. Lat. 38. 42. and W. Long. 181. 36.
During the time of his stay in this part of the world
the Captain circumnavigated almost the whole country
of New Zealand, which he found to consist of two
islands separated from each other by a narrow strait,
which, from its discoverer, has obtained the name of
Cook's Strait. In some places the disposition of the in-
habitants was as favourable as could be wished; so that
Dr Solander, Mr Banks, and other gentlemen, had an
opportunity of exploring the country in some degree,
with a view to discover its natural productions. In
one of their excursions, as they passed through a val-
ley, the hills on each side of which were very steep,
they were suddenly struck with the sight of a very ex-
traordinary natural curiosity. It was a rock perfora-
ted through its whole substance, so as to form a rude
but stupendous arch or cavern, opening directly to the
sea. This aperture was 75 feet long, 27 broad, and
45 in height, commanding a view of the bay and the
hills on the other side, which were seen through it;
and opening at once on the view, produced an effect
far superior to any of the contrivances of art. On
that part of the coast, which, from having observed a
transit of Mercury, they named *Mercury Bay*, oysters
were found in such plenty, that they might have load-
ed not only their boats, but their ship with them.
They were about the same size with those met with in
this country; and on account of their being found in
such plenty, and likewise that the adjacent country
abounds with conveniences, Captain Cook was at great
pains to point out the situation of the place. By his
observations, the latitude of Mercury bay is 36. 48.
28. S.

Leaving this bay our commander proceeded to ex-
plore other parts of the country, which by their ac-
count seems to abound with rivers. Two large ones
were met with in Mercury bay; one of which, from
the abundance of oysters found at its mouth, was cal-
led *Oyster river*; the other they named *Mangrove ri-
ver*, from the number of mangrove trees growing there.
A third, which they called *Thames*, was met with in
that part called the Bay of Islands, up which they sail-
ed 14 miles. Its banks were every where adorned
with lofty trees, which they had likewise observed in
other parts of the country. They were too heavy for
masts,

Cook's
Discoveries.14
They ar-
rive at New
Zealand.15
Rock of an
extraordi-
nary shape.16
Natural
products of
the coun-
try.

Cook's
Discoveries.

masts, but would make the finest planks imaginable; and as they resembled the pitch pine, the timber of which is lightened by tapping, the carpenter was of opinion that they might thus be rendered more proper for masts than any European timber. One of these trees measured 19 feet 8 inches in circumference at the height of six feet from the ground, and was no less than 89, with very little taper, to the branches; so that the lieutenant supposed it must contain 356 feet of solid timber. In Queen Charlotte's Sound, the country was little other than one vast forest, with plenty of excellent water, and the coast abounding with fish. As the ship lay at the distance of only a quarter of a mile from the shore, they were agreeably entertained with the singing of an infinite number of small birds, which formed a melody greatly superior to any thing they had ever heard before. The music of these little choristers seemed to be like small bells, most exquisitely tuned, though probably the distance and intervention of the water had a considerable effect in heightening it. They began to sing about two in the morning, and continued their song till sun-rise, after which they were silent all the day, resembling in this respect the nightingales of our own country.

17
General
description
of the coun-
try.

The time which Capt. Cook spent in exploring the coasts of New Zealand was not less than six months. By his researches it was shown to consist of two large islands, the most northerly of which is called *Eabeinomauiwe*, and the most southerly *Touy*, or *Tavai Poenammoo*; though it is not certain whether the whole southern island or only a part of it is comprehended under this name. This island seems to be barren and mountainous, but *Eabeinomauiwe* has a much better appearance; and it was universally believed by the gentlemen on board, that all kinds of European grain, as well as garden plants and fruit, would flourish in the greatest abundance and perfection; and from the vegetables found here it was concluded that the winters are not more severe than those of England, and it was known by experience, that the summer was not hotter, though the heat was more equal than in this country. Here are no quadrupeds except dogs and rats; and the latter are so scarce, that they escaped the notice of many on board. The birds are not numerous, and the gannet is the only one of the European kind that was observed. The insects are equally scarce; but the sea makes abundant recompence for this scarcity of land animals; every creek swarms with fish, equally delicious with those in this country. The forests are of vast extent, and filled with excellent timber trees, the largest, straightest, and cleanest that Mr Cook had ever seen. There is here one plant which answers the purposes of both hemp and flax, and excels all other of the kind that has been met with in any other part of the world. If the settling of New Zealand therefore should ever be deemed an object worthy of the attention of Great Britain, Captain Cook was of opinion, that the best place for establishing a colony would be either on the banks of the Thames or in the bay of Islands; each of these places having the advantage of an excellent harbour. Settlements might be extended, and a communication made with the inland parts of the country by means of the river; and vessels easily constructed of an excellent timber with which the country every where abounds.

18
Proper
place for
settling a
colony
there.

The inhabitants of New Zealand are in a very barbarous state, and have a degree of ferocity unknown to the inhabitants of the South-Sea islands, though they seem to have the same origin. During their residence there, our navigators had the most convincing evidences of their being cannibals, and accustomed to devour the bodies of their slain enemies. Notwithstanding those barbarous practices, however, they seemed to enjoy a state of uninterrupted health. In all their visits made to their towns, none was ever perceived who had the least bodily complaint, not even the slightest eruption on the skin. This extraordinary degree of health was likewise manifested by the ease with which their wounds were healed without the smallest application, as well as by the number of old men with which the island abounded. Many of these, by the loss of their hair and teeth, seemed to be extremely old, but none of them were decrepid; and though inferior in strength to the young men, they came not behind them in the least with regard to cheerfulness and vivacity. The universal and only drink of the New Zealanders is water.

Our navigator had now explored three-fourths of that part of the globe where the southern continent was supposed to lie, without being able to find it; and his voyage had demonstrated, that the lands seen by former navigators could not have been parts of such a continent, though, as he had never proceeded farther to the southward than 40 degrees, the arguments for it were not yet entirely overthrown. Mr Cook, however, did not at this time proceed farther in the search of such a continent, but sailed from New Zealand to the coasts of New Holland, where he anchored in Botany Bay on the 20th of April. Here he found a few savage inhabitants more barbarous and degenerate than any that had yet been observed. Their language was harsh and dissonant, totally unintelligible even to Tupia: they appeared to have little curiosity, and set no value upon any present that could be made them. The most remarkable circumstance in this country seems to be its extreme scarcity of water; not a single stream of any consequence having ever been observed by any navigator. Some were of opinion indeed, that Moreton's Bay, in S. Lat. 26. 56. and W. Long. 206. 28. opens into a river; though the only reason they had for this opinion was, that the sea looked paler in that part than usual, and the land at the bottom part of the bay could not be seen. At this time, however, the matter could not be determined by experiment, on account of the wind being contrary. The scarcity of water here is the more surprising, on account of the vast extent of the country, and likewise its having a abundance of tolerable high hills. In this island there were found many curious plants and animals; and it was found, that in several places the magnetical needle was affected to such a degree as to vary its position even to 30 degrees. At one time it varied no less than two points on being removed to the distance of only 14 feet. Some of the loose stones being taken up and applied to the needle produced no effect; but Mr Cook was of opinion that the whole phenomenon was to be ascribed to iron ore in some of the mountains, and of which traces had been already met with. This irregularity continued in some degree even at sea; for when the ship was close under Cape Upstart, the variation

Cook's
Discoveries.

19
Account of
the inhabi-
tants.

20
Discoveries
at New
Holland.

21
Magnetic
needle sur-
prisingly
affected.

Cook's
Discoveries.

Cook's
Discoveries.

22
Birds nests
of an im-
mense size.

23
Vast extent
of the coun-
try.

24
Separated
by straits
from New
Guinea.

25
Cockles of
vast size,
sea-scum,
&c.

26
Unaccount-
able me-
thod of the
natives of
letting off
fires.

ation of the needle in the evening of the 4th of June was 9. East, and next morning only 5. 35. ; and this was in like manner accounted for from iron ore, or some magnetical matter below the surface of the ground. The great island has many other smaller ones round it, several of which were visited by our navigators. One of them named *Eagle Island*, seemed to be inhabited by a monstrous kind of birds, the nest of one of which measured no less than 26 feet in circumference, and two feet eight inches in height ; and in the Philosophical Transactions, vol. xx. there is an account of one of these nests still larger ; but the bird to which it belonged was not seen. That which our navigators saw was built of sticks, and lay upon the ground.

The country which goes by the name of *New Holland* is by far the largest island in the world. Its eastern part, called *New South Wales*, now first explored by Captain Cook, extends upwards of 2000 miles in length, if the coast were reduced to a straight line. Though inhabited, as we have already said, by very barbarous savages, their number appears to bear no proportion to the extent of their territory. The intercourse they had with our navigators was so small, that they could pick up but a few words of their language. As a British settlement is now made in that country, there is no doubt that much more exact accounts will soon be obtained than even the diligence and attention of Captain Cook could collect on such a transient visit.

In this voyage our navigator, besides exploring the eastern part of the island, which had never been done before, discovered that it was separated from the island of New Guinea, to which it had formerly been thought to join. The two countries are separated by a strait to which the commander gave the name of *Endeavour Strait*. The north entrance of this lies in S. Lat. 10. 39. and W. Long. 218. 36. ; the passage is formed by the main land and a congeries of islands to the north, on which our navigator bestowed the name of *Prince of Wales' Islands*. These are very different both in height and extent ; and the Captain was of opinion, that several passages might be found out among them. On the coast of New Holland opposite to New Guinea are found cockles of an immense size ; some of them being as much as two men could move, and containing 20 pounds of good meat. In these seas, as well as on the coasts of Brazil, our navigators found the surface of the water covered with a kind of scum called by the sailors *sea spawn*. It was examined by Mr Banks and Dr Solander ; but they could determine nothing farther than that it was of vegetable origin.

The natives of New Guinea were so hostile that no discoveries of any consequence could be made. They resembled the New Hollanders in stature, and having short cropped hair. Like them too they were absolutely naked, but somewhat less black and dirty. They had a surprising method of letting off a kind of fires, exactly resembling the flashes of fire-arms, but without any explosion. It was not known in what manner this was done, as they were never near enough to make a particular observation. Those who discharged them had a short piece of stick which they swung sideways from them, from which there issued the fire and smoke just mentioned. This seems to have been in-

tended as a defiance ; for they had no effect as offensive weapons, and others were armed with bows and arrows. The country appeared extremely pleasant and fertile. The place at which they touched lies in S. Lat. 6. 15.

As the condition of the *Endeavour* was now very much shattered by having sailed so long in these dangerous seas, the commander determined to make the best of his way for Batavia in order to refit. In this voyage he first passed two unknown islands without touching at either of them. They were supposed to belong to the *Aurora* islands ; but if this be the case, the latter must be laid down at too great a distance from New Guinea. The *Weasel Isles*, laid down by former navigators at about 20 or 25 leagues from the coast of New Holland, were not seen ; for which reason Mr Cook is of opinion that they are erroneously laid down.

Passing by the islands of Timor, Timor lavet, Rotta, and Seman, they next arrived at the island of Savu, where a settlement had lately been made by the Dutch. In this voyage they had the satisfaction of observing the aurora australis, which here seemed to differ in some respects from that in the northern hemisphere. It consisted of a dull reddish light extending about 20 degrees above the horizon ; and though it varied sometimes in extent, it was never less than eight or ten degrees. From this general mass of light there sometimes issued rays of a brighter colour, which vanished and were renewed like those of the aurora borealis, but without any of that tumultuous motion observed in the aurora borealis. The body of the light bore S. S. E. from the ship, and continued without any diminution of its brightness from 10 to 12 at night.

The middle part of the island of Savu lies in 10. 35. south, and 237. 30. west longitude, and afforded a most beautiful prospect from the ship. The people are remarkable for the purity of their morals, which are said to be irreproachable, even on the principles of Christianity. Though no man is allowed to have more than one wife, instances of illicit commerce betwixt the sexes are scarcely known among them. Instances of theft are likewise very rare ; and so far are they from revenging a supposed injury by murder, that when any differences arise among them, they are immediately and implicitly referred to the determination of the king. They will not even make it the subject of private debate, lest they should be provoked to resentment and ill-nature ; and the delicacy and cleanliness of their persons are said to be proportionable to the purity of their morals.

On the arrival of the *Endeavour* at Batavia, our navigator had an opportunity of observing the good effects of the electrical chains applied to ships in securing them from the effects of lightning. A dreadful storm of thunder happened one evening, during which the main mast of one of the Dutch East India-men was split and carried away close by the deck, the main top-mast, and top-gallant mast being shivered to pieces. This ship lay so near the *Endeavour*, that the latter would probably have shared the same fate, had it not been for the conducting chain which fortunately was just put up. The explosion shook her like an earthquake, the chain at the same time appearing like

27
Aurora
Australis.

28
Excellent
character
of the in-
habitants
of Savu.

29
Good ef-
fects of the
electrical
chains in
preserving
from the
effects of
lightning.

Cook's
Discoveries.

30
Death of
Tupia.

a line of fire. The stroke seemed to have been directed to the Dutch vessel by an iron spindle at the mast head: which practice our commander discommends, but strongly inculcates the use of the electrical chain.

On their landing at Batavia, Tupia was confined by sickness, so that he appeared quite lifeless and dejected when put into the boat: but on his arrival at land recovered his spirits surprisingly. The scene, to him so new and extraordinary, seemed to produce an effect similar to what is produced by enchantment. His attention was particularly engaged by the various dresses of the people: and being informed that at Batavia every one appeared in the dress of his own country, he expressed a desire of likewise appearing in the garb of Otaheite. Having therefore been furnished with South Sea cloth from the ship, he equipped himself with great quickness and dexterity. After the first flow of spirits had subsided, however, he soon began to feel the fatal effects of the climate; and his boy Tayeto, whose spirits had been still more elevated on his arrival, was attacked with an inflammation of the lungs, and in a little time fell a victim to the disease. Tupia himself did not long survive him, and his death was not attributed solely to the unwholesomeness of the climate. Having been accustomed from his infancy to subsist chiefly upon vegetable food, and particularly on ripe fruit, he had soon contracted the disorders incident to a sea-life, and could scarce have been expected to reach England, even if the unwholesome climate of Batavia had been out of the question.

31
Prince's
Island, a
proper
place for
ships to
touch at.

The Endeavour left Batavia on the 27th of December 1770, and on the 5th of January 1771 reached Prince's Island. This place had been formerly much frequented by the India ships, but of late entirely deserted on account of the supposed bad quality of the water; but this our navigator has discovered to be a mistake; and that, though the water near the sea is brackish, it may be had of excellent quality by going a little way up the country. He is of opinion, that this island is a more proper place for ships to touch at than either North Island or New Bay, because neither of these can afford other refreshments which may be had at Prince's Island.

The rest of the voyage affords but little interesting matter. The Cape of Good Hope, which was their next stage, has been so fully described by former navigators that there was little room for addition. At St Helena the commander made some remarks on the rigorous treatment of the slaves, which was represented as worse than that of the Dutch either at Batavia or the Cape of Good Hope. In the account of his second voyage, however, this accusation was retracted.

32
Second
voyage.

Captain Cook's second voyage was undertaken in an especial manner to determine finally the question concerning the existence of a southern continent. It commenced in the year 1772; and, as in the former, he proceeded first to Madeira. From thence he proceeded to St Jago, one of the Cape de Verde Islands; where an opportunity was taken of delineating and giving such a description of Port Praya, and the supplies to be there obtained, as might be of use to future navigators. On the 8th of September he crossed the line in 80° west longitude, and had the satisfaction to meet with good weather, though he had been informed that

he had sailed at an improper time of the year, in consequence of which he would probably be becalmed. From his account, however, it appears, that though in some years such weather may be expected, it is by no means universally the case. In this part of the ocean he had also an opportunity of observing the cause of the luminous property of sea-water, which in his former voyage had been attributed to insects. Mr Forster being of a different opinion, the matter was again particularly inquired into, but the result was entirely conformable to the former determination. Some buckets of water being drawn up from along side the ship, were found to be filled with those insects of a globular form, and about the size of a small pin's head. No life indeed could be perceived in them; but Mr Forster was thoroughly convinced of their being living animals when in their proper element.

Proceeding southward in quest of a continent, they fell in with Ice Islands in S. Lat. 50. 40. and two degrees of longitude east from the Cape of Good Hope. One of these was so much concealed by the haziness of the weather, that it could not be seen at the distance of more than a mile. Captain Cook judged it to be about 50 feet in height and half a mile in circumference; its sides rising in a perpendicular direction, and the sea breaking against them with great violence. Two days after, they passed six others, some of which were two miles in circumference and 60 feet in height; yet such was the strength and violence of the waves that the sea broke quite over them. On the 14th they were stopped by a vast field of low ice, of which they could perceive no end. In different parts of this field there were seen islands, or hills of ice like those already described, and some of the people imagined that they saw land over them; but upon a narrow examination this was found to be a mistake. On getting clear of the field of ice they again fell in with loose islands; and as it was a general opinion that these are only formed in bays and rivers, our navigators concluded that they could not be at a great distance from land. They were now in the latitude of 55° 40' south; and as they had sailed for more than 30 leagues along the edge of the ice without finding any opening, the Captain determined to run 30 or 40 leagues farther to the eastward, in hopes of then getting to the southward. If in this attempt he met with no land or other impediment, his design was to stretch behind the ice altogether, and thus determine the matter at once. In a short time, however, it became evident that the field of ice along which they had sailed so long, did not join with any land; and the Captain now came to a resolution of running as far to the west as the meridian of Cape Circumcision. In the prosecution of this design he met with a very severe storm, which was rendered the more dangerous by the pieces of loose ice among which they were still entangled, and a vast field of which they could not perceive the boundaries, about three miles to the northward. Of this they could not get clear without receiving some severe strokes; and after all, when they arrived at the place where they ought to have found Cape Circumcision, it could not be discovered; so that the Captain concluded that what Bouvet took for land could have been nothing but ice.

During this run the fallacy of the general opinion had

Cook's
Discoveries.

33
Calms not
always to
be feared
near the
equinoctial.

34
Luminous
quality of
sea water
further de-
termined.

35
Ice islands.

Cook's
Discoveries.

36
Ice not al-
ways found
in the vici-
nity of
land.

had been discovered, that the ice with which the polar regions abound has been formed in the vicinity of land. It was found likewise, that the water produced from the melting of ice, even though formed in the ocean, was perfectly sweet and well tasted. Of this circumstance the Captain took advantage to supply himself with water; and gave it as his opinion that it was the most expeditious method of watering he had ever known. He had likewise an opportunity of detecting another popular error, viz. that penguins, albatrosses, and other birds of that kind, never go far from land. This indeed may be the case in open seas, but in such as are covered with ice it is very different; for they then inhabit the ice islands, and float out with them to sea to a great distance.

37
Irregulari-
ty of the
magnetic
needle.

When in the latitude of 49. 13. S. some signs of land were perceived; but as the wind did not admit of any search being made in the direction where it was supposed to lie, the Captain proceeded in his voyage to the eastward. A very remarkable alteration in the direction of the needle was now perceived, and which could not be supposed owing to the vicinity of any magnetic matter, as it happened while the ships were far out at sea. The circumstance was, that when the sun was on the starboard side of the ship the variation was least, but greatest when on the opposite side. An aurora australis was again observed, which broke out in spiral or circular rays, and had a beautiful appearance; but did not seem to have any particular direction, being conspicuous at various times in different parts of the heavens, and diffusing its light over the whole atmosphere.

38
Extreme
cold of the
southern
seas.

The extreme cold and stormy weather which now began to take place, determined Captain Cook not to cross the antarctic circle a second time as he had once designed. His observations confirmed the accounts of former navigators, that the cold of the southern seas is much more intense than in equal latitudes in the northern hemisphere; but at the same time it showed that this cold cannot be owing to the vicinity of a continent, as had been formerly imagined. On the contrary, it was now determined beyond dispute, that if any such continent existed in the eastern part of the southern ocean, it must be confined within the latitude of 60 degrees. No farther discoveries therefore being practicable in higher latitudes, as the winter season was approaching, the commander steered for New Zealand, where he anchored in Dusky Bay on the 25th of March, having been at sea 117 days without once coming in sight of land. Here the time was spent in

39
Farther ac-
count of
New Zea-
land.

procuring proper refreshments for the people, and exploring the sea-coast and country for the benefit of future navigators. Nor was our commander unmindful of the inhabitants. Here he left the five geese which yet remained, choosing for them a place where there were no people at the time to disturb them; and as they had there great plenty of food, he had no doubt of their breeding, and in a short time spreading over the country. Some days after a piece of ground was cleared by setting fire to the topwood, after which it was dug up and sowed with garden seeds. Dusky Bay is situated in the western island of New Zealand, called *Tavaipoenamoo*, which, as has already been said, is less fertile than the other. The inland part is full of rugged mountains of a vast height: but the sea coast

N^o 91.

is covered with trees, among which is the true spruce, which was found to be of great use. It was remarked, that though a vast quantity of rain fell during the time of residence here, it was not attended with any bad effects on the health of the people; which furnishes an additional argument of the healthiness of the place. Dusky Bay is reckoned by Captain Cook to be the most proper place in New Zealand for the procuring of refreshments, though it is attended with some disagreeable circumstances, particularly being infested with great numbers of black sand-flies, which were troublesome to an extreme degree. The natives seen at Dusky Bay were apparently of the same race with those seen in other parts of the country, and led a wandering life, without any appearance of being united in the bonds of society or friendship.

From Dusky Bay the Captain proceeded to Queen Charlotte's Sound, where he met with the *Adventure*, which had been separated from the *Resolution* for above 14 weeks. In his passage thither he had an opportunity of observing six water-spouts, one of which passed within 50 yards of the *Resolution*. It has been a common opinion, that these meteors are dissipated by the firing of a gun, and the Captain was sorry he had not made the experiment; but he acknowledges, that though he had a gun ready for the purpose, and was near enough, his attention was so much engaged in viewing them, that he forgot to give the necessary orders.

Having planted another garden in this part of the country, and left two goats, two breeding sows and a boar, in as private a situation as possible, that they might be for some time out of the reach of the natives, the Captain set sail for Otaheite. During the long absence of the *Adventure*, Captain Furneaux had visited the coast of New Holland, and discovered that there was no probability of Van Diemen's land being separated from it by straits: he had likewise found additional proofs that the natives of New Zealand were accustomed to eat human flesh. Captain Cook also remarked with concern, that the morals of the New Zealanders were by no means mended by the visit he had formerly paid them. At that time he looked upon the women to be more chaste than those of most of the nations he had visited; but now they were ready to prostitute themselves for a spikenail, and the men to force them to such an infamous traffic, whether agreeable to the inclinations of the females or not.

In the run from New Zealand to Otaheite, our commander passed very near the situation assigned by Captain Carteret to Pitcairn's island, discovered by him in 1767, but without being able to find it, though a sight of it would have been useful for correcting its longitude as well as that of others in the neighbourhood; but there was not at present any time to spend in searching for it. Proceeding farther on in his voyage, however, he fell in with a cluster of islands supposed to be the same discovered by M. Bougainville, and named by him the *Dangerous Archipelago*. To four of these Captain Cook gave the names of *Resolution*, *Doubtful*, *Furneaux*, and *Adventure Islands*. *Resolution* Island is situated in S. Lat. 17. 24. W. Long. 141. 39. *Doubtful* Island in S. Lat. 17. 20. W. Long. 141. 38. *Furneaux* Island in S. Lat. 17. 5. W. Long.

Cook's
Discoveries.

40
Water
spouts.

41
Discoveries
of Captain
Furneaux.

42
New islands
discovered.

Cook's Discoveries 143. 16. and Adventure Island in S. Lat. 17. 14. and W. Long. 144. 30.

43 Mistake concerning the women of Otaheite

No discovery of any great consequence was made at the island of Otaheite or those in its neighbourhood, excepting that the Captain had an opportunity of correcting the opinion, which till now had prevailed, of the excessive dissoluteness and immodesty of the women of Otaheite; and which had been enlarged upon by Dr Hawkesworth more than seemed to be consistent with decency. The charge, however, according to the accounts of this second voyage, is far from being indiscriminately true, even of the unmarried females of the lower class. Some additions were made to the knowledge of the geography of those islands; and from Huaheine Captain Furneaux took on board of his ship one of the natives of Ulieta named *Omai*, afterwards so much spoke of in England. Captain Cook at first appeared dissatisfied with his choice of this youth, as being inferior in rank to many others, and having no particular advantage in shape, figure, or complexion; however, he had afterwards reason to be better pleased. During the Captain's residence at Otaheite, he used his utmost endeavours to discover whether the venereal disease was endemic among them, or whether it had been imported by Europeans: but in this he could not meet with any perfectly satisfactory account, though it was universally agreed, that if it had been introduced by Europeans, it must have been by the French under M. Bougainville.

44 Harvey's Island discovered.

Captain Cook having left Ulieta on the 17th of September 1773, directed his course westward, with an inclination to the south. In this course he discovered land in S. lat. 19. 8. and W. long. 158. 54. to which he gave the name of *Harvey's Island*. From thence he proceeded to the island of Middleburg, where he was treated in the most hospitable manner possible. To such an excess did the people carry their generosity, that they seemed to be more fond of giving away their goods than in receiving any thing for them; inasmuch that many, who had not an opportunity of coming near the boats, threw over the heads of others whole bales of cloth, and then retired, without either waiting or asking for any thing in return. From Middleburg he proceeded to Amsterdam island, where the beauty and cultivation of the island afforded the most enchanting prospect. There was not an inch of waste ground; the roads were no wider than what was absolutely necessary, and the fences not above four inches thick. Even this was not absolutely lost; for many of these contained useful trees or plants.

45 South Sea islands generally surrounded by coral rocks.

It is observable of the isles of Middleburg and Amsterdam, as well as of most others in the South Sea, that they are guarded from the waves by a reef of coral rocks, which extend about one hundred fathoms from the shore. Thus they are effectually secured from the encroachments of the ocean; by which they would probably soon be swallowed up, as most of them are mere points in comparison of the vast quantity of water which surrounds them. Here he left a quantity of garden vegetable seeds and pulse, which it was not doubted would be taken care of by the industrious inhabitants. In the last mentioned islands our navigators found no animals but hogs and fowls: the former being of the same kind with those usually seen in the other islands of the South Sea; but the latter

greatly preferable, equalling those of Europe in their size, and even preferable in respect of the goodness of their flesh.

Cook's Discoveries.

On the 7th of October Captain Cook left the island of Amsterdam, with a design to pay another visit to New Zealand, in order to take in wood and water for his voyage in quest of a southern continent. The day after he left Amsterdam he fell in with the island of Pillart, formerly discovered by Tasman, and situated in S. Lat. 26', W. Long. 175. 59., 32 leagues distant from the east end of Middleburg. On his arrival at New Zealand, he exerted himself as much as possible to leave a proper assortment of vegetables and animals for the benefit of the inhabitants. One of the first things he did, therefore, was to make a present to a chief, who had come off in a canoe, of a quantity of the most useful garden seeds, such as cabbage, turnips, onions, carrots, parsnips, and yams; together with some wheat, French and kidney beans and pease. With the same person also he left two boars, two sows, four hens, and two cocks. This present, however valuable in itself, seems to have been but indifferently received; for the chief was much better satisfied with a spikenail half the length of his arm than with all the rest; notwithstanding which, he promised to take care of the seeds, and not to kill any of the animals. On inquiring about those animals left in the country in the former part of his voyage, the Captain was informed, that the boar and one of the sows had been separated, but not killed. The other he saw in good condition, and very tame. The two goats, he was informed, had been killed by a native of the name of Gaubiah. The gardens had met with a better fate; all the articles being in a very flourishing condition, though left entirely to nature, excepting the potatoes. Captain Cook, however, still determined to supply these islanders with useful animals, put on shore a boar, a young sow, two cocks, and two hens, which he made a present of to the adjacent inhabitants. Three other sows and a boar, with two cocks and hens, he ordered to be left in the country without the knowledge of the Indians. They were carried a little way into the woods, and there left with as much food as would serve them for 10 or 12 days, in order to prevent them from coming down to the coast in quest of it, and thus being discovered.

46 Another visit to New Zealand.

A second separation from the Adventure had now taken place; notwithstanding which, Captain Cook set out alone with his vessel in quest of a southern continent; and such was the confidence put in him by the sailors, that all of them expressed as much satisfaction and alacrity as if not only the Adventure, but ever so many ships had been in company.

47 Voyage in quest of a southern continent.

On the 26th of November the Captain set sail from New Zealand; and on the 12th of December began to fall in with the ice, but considerably farther to the southward than they had met with it in the former part of his voyage; being now in the Lat. of 62. 10. S. and 172° W. Long. As they proceeded southward, the number of ice islands increased prodigiously; and in Lat. 67. 31. and W. Long. 142. 54. they all at once got in among such a cluster of these islands, that it became a matter of the utmost difficulty and danger to keep clear of them. Finding it impossible, therefore, to get any farther to the southward at present,

Cook's
Discoveries.48
Is stopped
by ice.

the Captain determined to explore a considerable tract of sea to the north of his present situation, and then again to stand to the south. But in this he was still unsuccessful; no land being discovered either in sailing northward, eastward, westward, or southward; though he proceeded as far in the last direction as 71. 10. S. Lat. and 106. 54. W. It was now impossible to proceed; and the opinion of the Captain himself, as well as of most of the gentlemen on board, was that the ice by which they were now stopped extended as far as the pole. As there was still room, however, in parts of the ocean entirely unexplored, for very large islands, our Commander determined not to abandon the pursuit in which he was engaged until there should not be any possibility of doing more; and besides the possibility of making new discoveries, he was conscious that many of the islands already discovered were so obscurely known, that it was of consequence to pay them a second visit. With this view he proposed to go in quest of Easter or Davis' Island; the situation of which was known with so little certainty, that none of the attempts lately made to discover it had been successful. He next intended to get within the tropic, and then to proceed to the west, touching at any islands he might meet with, and settling their situations, until he should arrive at Otaheite, where it was necessary for him to make some stay in order to look for the Adventure. It was part of his design also to run to the westward as far as Terra Austral del Espíritu Santo, discovered by Quiros, and which M. Bougainville had named *The Great Cyclades*. From this land he proposed to sail to the southward, and from thence to the east between the latitude of 50° and 60°. In the execution of this design, he determined if possible to reach Cape Horn, during the ensuing November, when he would have the best part of the summer before him to explore the southern part of the Atlantic Ocean.

49
Nutritive
property of
dog's flesh.50
Visit Easter
Island.

In pursuing his course to the northward, it had been part of his design to find out the land said to have been discovered by Juan Fernandez in about the latitude of 38°; but he was soon convinced, that if any such land existed, it could only be a very small island; but the prosecution of the design was for some little time interrupted by a violent bilious disorder by which the Captain was attacked. In this, when he began to recover, as there was no fresh meat on board, he was obliged to have recourse to dog's flesh; and a favourite animal belonging to Mr Forster was sacrificed on the occasion. The Captain was able to eat not only of the broth made of this, but likewise of the flesh, when his stomach could bear nothing else. On the 11th of March they arrived at Easter Island, before which time the Captain was tolerably recovered. Here they made but few discoveries farther than determining the situation of it to be in S. Lat. 27°. 5. 30, and W. Longitude 109°. 46. 20. The island itself was found barren and desolate, having every appearance of being lately ruined by a volcanic eruption; without either wood, fuel, or fresh water worth taking on board. The inhabitants were few in number; and the women in very small proportion to the men, but remarkable for their lewdness. A number of gigantic statues were observed, which had also been taken notice of by Com-

modore Roggewein, and the origin of which could not be accounted for.

On leaving Easter Island, Captain Cook was again attacked by his bilious disorder; but happily recovered before he reached the Marquesas, which they did on the 6th and 7th of April. One of these, being a new discovery, received the name of *Hood's Island*, from the young gentleman by whom it was first observed. These are five in number; situated between 9 and 10 degrees of south latitude, and between 138. 47. and 139. 13. of west longitude. They were discovered by Mendana a Spaniard; and their names are, La Magdalena, St Pedro, La Dominica, Santa Christina, and Hood's Island. The inhabitants are, without exception, the finest race of people in the South Sea, surpassing all others in that part of the world in the symmetry of their persons and regularity of their features. Their origin, however, from the affinity of language, was evidently the same with that of Otaheite. It was in St Christina that our commander anchored; and he has left particular directions for finding a particular cove in Resolution Bay in that island, which is the most convenient for procuring wood and water.

In the passage from the Marquesas to Otaheite, our navigators passed several low and small islands connected together by reefs of coral rocks. One of these, named by the inhabitants *Tiookea*, was visited by Lieutenant Cooper. It was discovered and visited by Captain Byron; and is situated in S. Lat. 27. 30. W. Long. 144. 56. The inhabitants are much darker in their complexions, and seem to be of a fiercer disposition than those of the neighbouring islands. They have the figure of a fish marked upon their bodies; a very proper emblem of their profession, deriving their subsistence almost entirely from the sea. Passing by St George's Islands, which had been also discovered and named by Captain Byron, our Commander now discovered four others, which he named *Palliser's Islands*. One of these is situated in S. Lat. 15. 26. and W. Long. 146. 20. another in S. Lat. 15. 27. and W. Long. 146. 3. They were inhabited by people resembling those of Tiookea, and like them were armed with long pikes. Here our navigator observed, that from W. Long. 138° to 148° or 150°, the sea is so full of small low islands, that one cannot proceed with too much caution.

On his arrival in Otaheite, provisions were met with in great plenty; and they were now very acceptable, by reason of the long time the ship had been at sea without obtaining any considerable supply. Two goats which had been given by Captain Furneaux to a chief named Otoo, appeared to be in a very promising situation. The female had brought forth two kids, which were almost large enough to propagate; and as she was again with kid, there was little doubt that the island would soon be stocked with these useful animals; though it was otherwise with the sheep, all of which had died except one. On this occasion, also, the Captain furnished the natives with cats, of which he gave away twenty; so that there was little danger of the stock of these animals decaying. During his residence at this time, he had an opportunity of making some computation of the number of inhabitants on the island, which he supposed to be no less than 200,000.

Huahine

Cook's
Discoveries.51
And the
Marquesas.52
Island
Tiookea.53
Palliser's
Islands.54
Arrival at
Otaheite.

Cook's
DiscoveriesCook's
Discoveries55
Huaheine,
Ulietea,
Howe
Island, &c.

Huaheine and Ulietea Islands were next visited, but without any remarkable occurrence. From the latter our Commander set sail on the 5th of June 1774; and next day came in sight of Howe Island, discovered by Captain Wallis, and situated in S. Lat. 16. 46. and W. Long. 154. 8. On the 16th a new island, named *Palmerstone Island*, was discovered in S. Lat. 18. 4. W. Long. 163. 10.; and, four days after, another was observed in S. Lat. 19. 1. W. Long. 169. 37. As it was evidently inhabited, the Captain determined to land; but found the people so extremely hostile, that no intercourse could be had: nay, he himself was in danger of losing his life by a lance thrown by one of the natives, which passed close over his shoulder. From the extreme hostility of the people of this island, it was named by Captain Cook *Savage Island*. It is of a round shape, pretty high, and has deep water close to the shore, but has no good harbour.

56
Rotterdam
Island.

Passing by a number of small islands, Captain Cook next anchored at that of Anamocka or Rotterdam, discovered by Tasman. It is situated in 20. 15. S. Lat. and 174. 31. W. Long. Its form is triangular, each side extending about three and a half or four miles. From the north-west to the south it is encompassed by a number of small islands, sand banks, and breakers; of which no end can be seen from the island on the northern side, and may possibly be as far extended as Amsterdam or Tongataboo. While the Captain remained on this island, he learned the names of more than 20 of the adjacent isles some of which were in fight between the north west and north-east. Two of these, which lie more to the westward than the others, are named *Amattafoa* and *Oghao*. They are remarkable for their height; and from a great smoke visible about the middle of *Amattafoa*, it was supposed to have a volcano. The island of Rotterdam, Middleburg or Eaoowe, with Pilstart, form a group extending about three degrees of longitude and two of latitude. The whole group was named *The Friendly Isles* by Captain Cook, on account of the friendship which seemed to subsist among the inhabitants, and their courteous behaviour to strangers. The people of Rotterdam Island are similar to those of Amsterdam; but the island is not in such a state of high cultivation as Amsterdam, nor do its fruits come to such perfection. It is also inferior in the articles of cloth, matting, &c. which are accounted the wealth of these parts.

57
Supposed
volcano.58
New He-
brides vi-
sited.

From Rotterdam island our navigator continued his course to the westward, where he first discovered a small island in S. Lat. 19. 48. W. Long. 178. 2. It was named *Turtle Island*, from the great number of these animals found upon it. Sixteen days after he fell in with the cluster of islands named by M. Bougainville the *Great Cyclades*. The first island on which he landed was *Mallicollo*, where, though the people were at first very hostile, they were soon conciliated, and a friendly intercourse took place. The language of these people is considerably different from that of the other South-sea islands; they are diminutive in their persons, and of ugly features; their hair black or brown, short and curling, but less soft than that of the negroes. They had no name for a dog in their language, and had never seen the animal; so that they were extremely fond of a dog and bitch of which Captain Cook made them a present. The harbour in

this island, in which the ship came to an anchor, was named *Sandwich harbour*, and lies on the north-east side in S. Lat. 16. 25. 20. E. Long. 167. 57. 53. It is very commodious for the carrying on any operations at land, having a good depth of water, and many other advantages.

The next discovery was that of the Group named *Shepherd's Isles*, in honour of Dr Shepherd, Plumian professor of astronomy at Oxford. Numbers more were every day observed; of which one peaked rock, named the *Monument*, was uninhabited, being apparently inaccessible to any other creature but birds. *Sandwich island* is of a considerable extent, and exhibits a most beautiful prospect. It is surrounded with other smaller islands, the principal of which were named *Montague* and *Hinchinbrook*. At *Erromango* they found the people hostile and treacherous; and from a skirmish they had with them near a promontory on the north east point of the island, it was named *Traitor's Head*. Its situation is in S. Lat. 10. 43. E. Long. 169. 28.

From *Erromango* our navigator proceeded to *Tanna*, an island they had formerly discovered at a distance, and which is surrounded by some others, three of which are named *Immer*, *Footqona* or *Erronan*, and *Anatom*. At *Tanna* they staid for some time, on account of their wanting some quantity of wood. A volcano was seen about the middle of this island, which burned with great violence, particularly in moist and wet weather; but notwithstanding the friendly terms on which they were with the natives, the latter would never allow them to approach this mountain. There were some spots on the sea-coast which emitted an hot and sulphureous smoke; and the people also expressed much uneasiness when these were approached or meddled with. The port which the ship entered in this island was named *Resolution Harbour*, and is situated in S. Lat. 19. 32. 25. E. Long. 169. 44. 35. It is a small creek three quarters of a mile long, and about half as broad. It is extremely convenient, having plenty of wood and water close to the shore. Among the vegetable productions of this island, there is reason to suspect the nutmeg tree to be one, a pigeon having been shot, in the claw of which was a wild nutmeg. The inhabitants are two distinct races of people, and speak two different languages; one that of the *Friendly islands*, the other peculiar to *Tanna* and those in the neighbourhood. The people are very expert in the use of their weapons; on which Mr Wales makes the following remarks; "I must confess I have often been led to think the feats, which Homer represents his heroes as performing with their spears, a little too much of the marvellous to be admitted in an heroic poem, I mean when confined within the strait stays of Aristotle; nay, even so great an advocate for him as Mr Pope acknowledges them to be surprising; but since I have seen what these people can do with their wooden spears, and them badly pointed, and not of an hard nature, I have not the least exception to any one passage in that great poet on this account. But if I see fewer exceptions, I can find infinitely more beauties in him, as he has, I think, scarcely an action, circumstance, or description of any kind whatever relating to a spear, which I have not seen and recognised among these people; as their whirling motion and whistling noise as they fly; their

60
Tanna
Island.[61]
Volcano.61
Dexterity of
the inhabi-
tants in the
use of their
lances.

Cook's
Discoveries.

quivering motion in the ground when they fall; their meditating their aim when they are going to throw; and their shaking them in their hand as they go along."

The Archipelago, in which Captain Cook had now remained a considerable time, is situated between 14. 29. and 20. 4. S. Lat. and between 166. 41. and 170. 21. E. Long. extending 125 leagues in the direction of N. N. W. $\frac{1}{2}$ W. and S. S. E. $\frac{1}{2}$ E. The principal islands are the Peak of the Etoile, Tierra del Espiritu Santo, Mallicollo, St Bartholomew, the Isle of Lepers, Aurora, Whitsuntide Isle, Ambrym, Paoom, Apee, Three Hills, Sandwich, Erromango, Tanna, Immer, and Anatom. They were first discovered in 1606 by Quiros, who supposed them to be part of a southern continent; nor were they visited from that time till the year 1768, when M. Bougainville bestowed upon them the name of the *Great Cyclades*, as already mentioned. This gentleman, however, besides landing in the Isle of Lepers, only discovered that the country was not connected, but consisted of islands. Captain Cook examined the whole in such an accurate manner, ascertaining the situation of many of the islands, and discovering such numbers of new ones, that he thought he had an undoubted right to impose a new name upon them; and therefore called them the *New Hebrides*.

62
New Caledonia discovered.

From the New Hebrides Captain Cook set sail for New Zealand, in order to prosecute his voyage in search of a southern continent, but in three days discovered a large island, which he named *New Caledonia*; and which, next to New Zealand, is the largest in the Pacific Ocean. It lies between 19. 37. and 22. 30. S. Lat. and between 163. 37. and 167. 14. E. Long. lying N. W. $\frac{1}{2}$ W. and S. E. $\frac{1}{2}$ E. extending about 87 leagues in that direction, though its breadth does not any where exceed 10 leagues. The natives are strong, active, well made, and seem to be a middle race between those of Tanna and the Friendly Isles; and the women were more chaste than those of the islands farther to the eastward. The island afforded a considerable variety of plants for the botanists, and some excellent timber of the species of the pitch-pine, for masts and spars. The wood is close-grained; white, and tough; and very fit for the purpose. One of the small islands surrounding the large one was named the *Isle of Pines*, from the quantity of these trees found upon it; and another, from the number and variety of plants it afforded, had the name of *Botany Island*. The coast, however, was so dangerous, that our navigator, having no more time to spare, was obliged to leave some part of it unexplored, though the extent was determined, as has been already related. Mr Forster was of opinion, that the language of this people is totally different from that of any of the other South Sea islands.

63
Norfolk Island.

Proceeding from New Caledonia, our navigator next fell in with an island about five leagues in circumference, and of a good height, situated in S. Lat. 29. 2. 30. and E. Long. 168. 16.; on which he bestowed the name of *Norfolk Island*. It was entirely uninhabited. Various trees and plants common at New Zealand were observed here, particularly the flax-plant, which is more luxuriant in this island than in any part of New Zealand. The chief produce of the island is a kind of spruce-pine, many of the trees of which are 10 or 12

feet in circumference. The palm-cabbage likewise abounds here; and the coasts are well stocked with excellent fish. On the 18th of October they arrived at Queen Charlotte's Sound in New Zealand; the situation of which was now ascertained by Mr Wales with the utmost accuracy, its latitude being found 41. 5. 56 $\frac{1}{2}$. S. and its longitude 174. 25. 7 $\frac{1}{2}$ E. On examining the gardens which had been made, it was found that they were in a thriving condition, though they had been entirely neglected by the natives. Some of the cocks and hens were supposed to be still in existence, as a new laid hen's egg was found, though none were seen.

On the 10th of November Captain Cook set sail from New Zealand in search of a southern continent; but having traversed a vast extent of sea for 17 days, from S. Lat. 43. 0. to 55. 48. he gave up all thoughts of finding any more land in this part of the ocean, and therefore determined to steer directly for the west entrance of the straits of Magellan, with a design of coasting the southern part of Terra del Fuego quite round Cape Horn to Le Maire's Straits. As the world had hitherto received but very imperfect accounts of this coast, he thought a survey of it would be of more advantage to navigation and geography than any thing he could expect to meet with in a higher latitude. On the 17th of December he reached the coast of Terra del Fuego, and in three days more anchored in a place to which he gave the name of *Christmas Sound*. The land appeared desolate beyond any thing he had hitherto experienced. It seems to be entirely composed of rocky mountains without the least appearance of vegetation. These mountains terminate in horrid precipices, the craggy summits of which spire up to a vast height; so that scarcely any thing in nature can have a more barren and savage aspect than the whole of the country. In the course of his voyage along this coast, he could not but observe, that at no time had he ever made one of such length where so little occurred of an interesting nature. Barren and dreary, however, as the coast was, it was not totally destitute of accommodations about Christmas Sound. Fresh water and wood for fuel were found about every harbour; and the country every where abounds with fowl, particularly geese. A considerable number of plants were also found upon it, almost every species of which was new to the botanists. In passing by Cape Horn, it was wished to determine whether it belonged to the land of Terra del Fuego, or to a small island south from it; but this was found impracticable on account of the foggy weather and dangerous sea. Its latitude was now determined to be 55. 58. S. and its longitude 67. 46. W. The coast appeared less dreary here than on the western side of Terra del Fuego; for though the summits of some of the hills were rocky, the sides and valleys seemed covered with a green turf and wooded in tufts. In passing this cape a remark was made by the Captain, that if he were on a voyage round Cape Horn, to the west, and not in want of wood or water, or any other thing which might make it necessary to put into port, he would sail a considerable way to the southward, so as to be out of the reach of land altogether. By this method he would avoid the currents, whose force, he was of opinion, would be broken

Cook's
Discoveries.

64
Arrival at
Zealand

65
At Terra
del Fuego

66
Remarks
on a voyage
round Cape
Horn.

at

Cook's
Discoveries.

Cook's
Discoveries.

67
Surprising
concord of
the animals
in these
ports.

at 10 or 12 leagues distance from the shore, and farther off would be entirely destroyed. The extent of Terra del Fuego, and consequently of Magellan's Straits, was found to be less than what is commonly laid down in maps and charts, and the coast, in general, less dangerous than has been usually represented; though this must undoubtedly have been owing in a great measure to the weather, which happened to be remarkably temperate. In one of the small islands near Staten Land, and which, from their being discovered on new year's day, were called *New Year's Isles*, a remarkable harmony was observed among the animals of different species with which these desolate regions abound. The sea-lions occupy the greatest part of the sea-coast; the bears occupy the island; the shags are posted in the highest cliffs; the penguins in such places as have the best access to and from the sea; and the other birds choose more retired places. Occasionally, however, all these animals were seen to mix together like domestic cattle and poultry in a farm yard, without one attempting to hurt the other in the least. Even the eagles and vultures were frequently observed sitting together on the hills among the shags, while none of the latter, either old or young, appeared to be disturbed at their presence. It is probable, therefore, that these birds of prey subsist by feeding on the carcases of the animals which die naturally or by various accidents, and which must be very numerous from the immense quantity existing on the island.

68
Farther discoveries in the southern region.

Our navigator now set out in quest of that extensive coast laid down in Mr Dalrymple's chart, and in which is marked the Gulph of St Sebastian; but when he came into the place where it is supposed to ly, neither land nor any certain signs of it could be met with. Some islands, however, were discovered, particularly Willis' island, in S. Lat. 54. 0. W. Long. 38. 23.; another named *Bird Island* and *South Georgia*, situated between 53. 57. and 54. 57. S. Lat. and between 38. 13. and 35. 34. W. Long. All these were covered with snow and ice to a great height. Not a tree was to be seen, not even a shrub, nor were there any rivulets or streams of water: the only vegetables to be met with were a coarse strong bladed grass, wild burnet, and a kind of moss. A considerable quantity of seals and penguins were met with, whose flesh, tho' very coarse, was preferred by the ship's company, even by Captain Cook himself, to the salt provisions, which were now greatly decayed. The most southerly land discovered by our navigator was that on which he bestowed the name of *Southern Thule*, and which is situated in S. Lat. 59° 13' 30" W. Long. 27° 45'. This was still more desolate than South Georgia, being forsaken even by the seals and penguins which abounded on it. Not a single herb of any kind was seen upon it, but vast high and barren mountains, the tops of some of which reached above the clouds; and it may be remarked, that this seems to be the only part of the world hitherto discovered, entirely unfit for the support of animal life.

69
Of the existence of a southern continent.

Southern Thule was discovered on the 31st of January 1775; and from this to the 6th of February several other islands were discovered, and named *Cape Bristol*, *Cape Montague*, *Saunders's Isles*, *Candlemas Isles*, and *Sandwich's Land*. With regard to this last, Captain

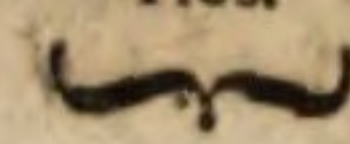
Cook was undetermined whether it was a groupe of islands or part of a continent lying near the pole, as after all his disappointments, he was still inclined to think that such a continent has an existence on account of the vast quantity of ice met with in the southern seas; and which from its great height appears to be formed in bays and gulphs of the land, and not in the ocean itself. The greatest part of this southern continent, however, if it has any existence, must be within the polar circle, where the sea is so incumbered with ice, that the land must be inaccessible. So great is the danger in navigating these southern seas, that Captain Cook asserts on the most probable grounds in the world, that such lands as ly to the southward of his discoveries could not be explored; and that even no man would venture farther than he had done. Thick fogs, snow-storms, intense cold, and every thing that can render navigation difficult or dangerous, must be encountered; all which difficulties are greatly heightened by the inexpressibly horrid aspect of the country itself. It is a part of the world doomed by nature never once to feel the warmth of the sun's rays, but to be buried in everlasting snow and ice. Whatever ports there may be on the coast, they are almost entirely covered with frozen snow of a vast thickness. If, however, any of them should be so far open as to invite a ship into it, she would run the risk of being fixed there for ever, or of coming out in an ice island. To this it may be added, that the islands and floats on the coast, the great falls from the ice-cliffs in the port, or a sudden snow-storm, might be attended with equally fatal effects. For these reasons our commander determined to abandon the pursuit of a land whose existence was so equivocal, but whose inutility, if it should be discovered, was certain. One thing only remained to complete what he wished to accomplish, and that was to determine the existence of Bouvet's land. In this enquiry he spent 16 days; but having run for 13 of these directly in the latitude assigned to that land, and found no appearance of it or of Cape Circumcision, he concluded, that neither of them had any existence, but that the navigators had been deceived by the appearance of ice-islands. Two days more were spent in quest of some land which had been observed more to the southward, but with the like bad success; after which our commander abandoned all farther thoughts of southern discoveries, and prepared for returning to England. On his way home, however, he determined to direct his course in such a manner as to fall in with the isles of Denia and Marsveen. These are laid down in Dr Halley's variation chart in the Lat. 41. 30. S. and about 4. 0. E. from the meridian of the Cape of Good Hope. None of these islands could be found; and therefore our commander, having very little time to spare either in searching for them or attempting to disprove their existence, made the best of his way to the Cape of Good Hope, and from thence to England. In his passage thither he visited the isles of St Helena, Ascension, and Fernando de Noronha. An experiment was made on the use of the still for procuring fresh water et sea; the result of which was, that though the invention was useful upon the whole, yet it would not by any means be advisable to trust entirely to it. Provided indeed that there was not a scarcity of fuel, and that the coppers were good,

70
Voyage in quest of Bouvet's land.

71
Of the isles of Denia and Marsveen.

72
Of the usefulness of distilling sea-water.

Cook's
Discoveries.



73
Third voy-
age.

74
Visits the
Isle of Te-
neriffe.

75
Tea-shrub.

76
Impregnat-
ed lemon.

77
Prince Ed-
ward's
Islands dis-
covered.

78
Voyage in
quest of
Kergue-
len's land.

as much might thus be procured as would support life ; but that no efforts would be sufficient to procure the quantity necessary for the preservation of health, especially in hot climates. He was likewise convinced that nothing contributes more to the health of seamen than having plenty of fresh water. His last stage in this second voyage before his arrival in England was at Fayal, one of the Azores islands ; and his only design of stopping here was to give Mr Wales an opportunity of finding the rate of the watches going, that so he might be enabled to find the longitude of these islands with the greater certainty.

In our commander's third voyage he touched at the island of Teneriffe instead of Madeira, looking upon the former to be a better place for procuring refreshments ; and was convinced of the justness of his conjecture by the facility with which provisions of all kinds were obtained. The air of the country is exceedingly healthy, and proper for those subject to pulmonary complaints. This was accounted for by a gentleman of the place from the great height of the island, by which it was in the power of any person to change the temperature of the air as he pleased ; and he expressed his surprise that physicians, instead of sending their patients to Nice or Lisbon, did not send them to Teneriffe. From the same gentleman it was learned, that the tea-shrub grows in that island as a common weed, which is constantly exterminated in large quantities. The Spaniards, however, sometimes use it as tea, and ascribe to it all the qualities of that brought from the East Indies. They give it also the name of tea, and say that it was found in the country when the islands were first discovered. Another botanical curiosity is the fruit called the *impregnated lemon*, which is a perfect and distinct lemon inclosed within another, and differing from the outer only in being a little more globular.

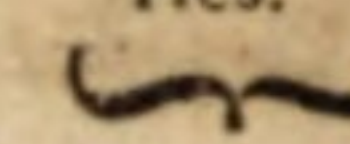
From Teneriffe Captain Cook proceeded to the Cape of Good Hope, and from thence to the southward, where he fell in with two islands, the larger of which is about 15 leagues in circuit, and the smaller about nine ; their distance from one another being about five leagues. The one of these islands lies in S. Lat. 46. 53. and E. Long. 37. 46. ; the other in S. Lat. 46. 4. E. Long. 38. 8. As the ships passed through between them, they could not discern either tree or shrub upon any of them, even with the assistance of their best glasses. The shore seemed to be bold and rocky, their internal parts full of mountains, whose sides and summits were covered with snow. These two, with four others, which ly from 9 to 12 degrees of longitude more to the east, and nearly in the same latitude, had been discovered in the year 1772 by Captain Marion du Fresne and Crozet, two French navigators in their passage from the Cape of Good Hope to the Philippines. As no names had been assigned to them in a chart of the Southern Ocean communicated to Captain Cook in 1775, the two larger ones were by him distinguished by the name of *Prince Edward's Islands*, in honour of his Majesty's fourth son ; the other four, with a view to commemorate the discoveries, were called *Marion's* and *Crozet's Islands*.

From these our commander steered to the southward in search of Kerguelen's land, which he had been instructed to touch at, in order to discover, if possible,

a good harbour there. In his passage to it several new islands were discovered ; one, to which Kerguelen had given the name of the *Island of Rendevous*, Captain Cook, on account of its shape, changed to that of *Blight's Cap*. It is situated in S. Lat. 48. 29. E. Long. 68. 40. and is a high round rock, inaccessible to all creatures but birds. Next day he fell in with Kerguelen's land, at first thought to be a part of the southern continent, but afterwards found by Kerguelen himself to be an island. The extent of it, however, was not determined either by the French navigator, or by Captain Cook. The former reckons it at 200 leagues in circumference, but Captain Cook estimates it at much less. Our navigator could not get any extensive view of it on account of the foggy weather ; but as far as could be discovered, it was barren and desolate, infomuch that there was neither food nor covering for cattle of any kind, so that they would inevitably perish if any were left. Even the sea-coasts were in a great measure destitute of fish ; but the shore was covered with innumerable multitudes of seals, together with penguins and other birds ; all of which were so void of fear that any quantity whatever might be killed without any difficulty. Not a single tree nor shrub could be seen, nor a piece of drift wood on the shore ; and herbage of every kind was likewise very scarce. A prodigious quantity of the sea-weed, called by Sir Joseph Banks *fucus giganteus*, was found in one of the bays. The whole variety of plants found in this island did not exceed sixteen or eighteen species. The harbour in which our navigator made his longest stay on this desolate coast was named *Port Palliser*, and is situated in S. Lat. 49. 3. E. Long. 69. 37. In this voyage our navigator undoubtedly displayed superior nautical abilities to those of M. Kerguelen, who in two voyages to the place had never been able to bring his ships to anchor on any part of the coast.

From Kerguelen's land our navigator proceeded to the coast of New Holland, where he now touched at the southern part called *Van Diemen's Land*, where he anchored in Adventure Bay. Here they found plenty of wood and water, with abundance of grass, coarse indeed, where they went first ashore, but afterwards much finer and proper for the cattle. Here, as every where else, the latitudes and longitudes were settled with the greatest exactness. The bottom of Adventure Bay was found to ly in S. Lat. 43. 21. 6. ; E. Long. 147. 29. The inhabitants visited them in a friendly manner, but seemed as stupid and insensible as those they had formerly seen. They seemed to be totally ignorant of the use of iron, and set no value upon any thing in the ornamental way excepting beads ; nor did they seem to be acquainted even with the use of fish hooks. Here they found the stories of the ancient fauns and satyrs living in hollow trees realized. Some huts covered with bark, and of a most wretched construction, were indeed found near the shore ; but the most commodious habitations were afforded by the largest trees. These had their trunks hollowed out by fire to the height of six or seven feet ; and there was room enough in one of them for three or four persons to sit round a hearth made of clay ; and it may justly seem surprising, that notwithstanding the extreme violence offered to the vegetative powers of the

Cook's
Discoveries.



79
Description
of that
island.

80
Of Van Di-
emen's
land.

Cook's
Discoveries.Cook's
Discoveries.

the tree by forming this habitation, it still continued to flourish in consequence of one side being left entire. The people, notwithstanding their extreme barbarity, were supposed to proceed from the same stock with those of the South Sea Islands. As in one of their visits the natives had seized upon two pigs which had been brought ashore, apparently with an intention to kill them, the commander determined to make them a present of these animals; though from their excessive stupidity and inattention there was no probability of their allowing them to propagate, if they had been put directly into their hands. To prevent this, Captain Cook ordered the two they had attempted to seize, being a boar and a sow, to be carried about a mile within the head of the bay, and saw them left by the side of a fresh water rivulet. He was prevented from leaving any other species by a consideration of the barbarity of the inhabitants.

81
Visit to
New Zealand.

From New Holland our navigator proceeded to New Zealand, where he arrived on the 12th of February 1777, and anchored in Queen Charlotte's Sound. Here he was desirous of leaving a further supply of animals; but the inhabitants had hitherto shown such carelessness about those which had been left, that he durst not venture to leave any other than two goats, a male and a female with kid, and two hogs, a boar and sow. He was informed, however, that one chief had several cocks and hens in his possession, so that there was some probability of these animals being allowed to multiply; and as ten or a dozen hogs had at different times been left by Captain Cook, besides those put on shore by Captain Furneaux, it seems also to be likely that this race of creatures will increase either in a wild or domestic state, or both. The gardens had still been almost totally neglected, and some of them destroyed. Those which remained, however, produced cabbages, onions, leeks, purslains, radishes, and a few potatoes. These last had been brought from the Cape of Good Hope, and were so greatly meliorated by the change of soil, that with proper cultivation they seemed to bid fair for excelling those of other countries.

82
Extraordi-
nary pre-
servation of
some of the
natives of
Otaheite.

Our navigator's next course was towards the island of Otaheite; in the run to which he discovered the Island of Mangea, situated in S. Lat. 22. 57. E. Long. 301. 53. From thence he proceeded to Wateoa, where Omai, now on his way home, recognised three of his countrymen, natives of the Society Islands, who had arrived here by the following accident. About 12 years before, 20 of the natives of Otaheite had embarked in a canoe, in order to visit the neighbouring island of Ulietea. A violent storm arose, which drove them out of their course, and they suffered incredible hardships by famine and fatigue, so that the greatest part of them perished. Four men continued hanging by the side of the vessel for four days after it was overset, when they were at last brought within sight of the people of this island. The latter immediately sent out their canoes, and brought them ashore, treating them afterwards with so much kindness, that the three who now survived expressed no desire of returning to their own country, though they had now an opportunity, but chose rather to remain where they were. This island is situated in S. Lat. 20. 1. E. Long. 201. 45. and is about 6 leagues in circumference,

The inhabitants are said to be equally amiable in their persons and dispositions.

Visiting a small island named *Wenooa-ete*, or *Ota-kootaia*, situated in S. Lat. 19. 15. and E. Long. 201. 37. our commander found it without inhabitants, tho' there were undoubted marks of its being occasionally frequented. Harvey's island, which in his former voyage had been destitute of inhabitants, was now found to be well peopled; but the inhabitants showed such an hostile disposition that no refreshments could be procured; for which reason it was determined to steer for the Friendly Islands, where there was a certainty of meeting with an abundant supply. In his way thither he touched at Palmerstone Island, from a small isle near which a supply of 1200 cocoa nuts were obtained, besides abundance of fish and birds of various kinds. Had the island been capable of furnishing water, the Captain would have preferred it to any of the inhabited ones for the purpose of procuring refreshments, as they could be had in any quantity without molestation from the petulance of the inhabitants. As water at this time happened to be a scarce article, our navigator was obliged to supply himself from the showers which fell, and which afforded as much in an hour as he could procure by distillation in a month.

During the time of residence at the Friendly Islands, our navigator visited one named *Hepae*, at which no European ship had ever touched before. Here he was entertained in a friendly manner, supplied with refreshments, and left some useful animals; great additions were made to the geography of these islands, and many curious remarks made on the inhabitants and natural products. It was observed by Mr Anderson, that the people had very proper notions of the immateriality and immortality of the human soul, and he thought himself authorised to assert that they did not worship any part of the visible creation.

Passing by a small island named *Toobouai*, about five or six miles in extent, and situated in S. Lat. 23. 25. E. Long. 210. 37., our navigator now arrived at Otaheite. Here Omai met with his relations, some of whom received him with apparent indifference; but his meeting with an aunt and a sister was marked with expressions of the most tender regard. It was Huahaine, however, that was destined for the place of Omai's final residence, and thither the Captain repaired on purpose to settle him. The affair was conducted with great solemnity; and Omai brought with him a suitable assortment of presents to the chiefs, went through a great number of religious ceremonies, and made a speech, the subject of which had been dictated to him by Captain Cook. The result of the negotiation was, that a spot of ground was assigned him, extending about two hundred yards along the shore of the harbour, with a proportionable part of an adjacent hill. The carpenters of both ships were then employed in constructing an house for him, in which he might secure his European commodities. At the same time a garden was made for his use, in which were planted shaddocks, vines, pine-apples, melons, and several other garden vegetables. Here he met with a brother, sister, and sister-in-law, by whom he was very affectionately received; but it was discovered with concern, that none of his relations were able to protect him in case of any attack on his person.

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Palmer-
stone Island
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ment, but
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water.84
Reception
of Omai at
Otaheite.85
He is let-
tled at Hu-
ahaine.

Cook's
Discoveries.86
Remarks
on the Society
Islands.

or property; so that there was too much reason to fear that he would be plundered immediately on the departure of the English. To prevent this, if possible, Captain Cook advised him to conciliate the favour and engage the patronage and protection of some of the most powerful chiefs by proper presents; at the same time that he himself took every opportunity of letting the inhabitants know that it was his intention to return to the island again, and if he did not find Omai in the same state of security in which he left him, those by whom he had been injured would certainly feel the weight of his resentment. About a fortnight after leaving Huaheine, the Captain had a message from Omai; in which he informed him that every thing went well, only that his goat had died in kidding, for which he desired another might be sent; and accompanied this request with another for two axes, which were sent along with a couple of kids, male and female. On taking his final leave of the Society Islands, Captain Cook observes, that it would have been far better for these poor people never to have known the superiority of the Europeans in such arts as render life comfortable, than after once being acquainted with it to be again abandoned to their original incapacity of improvement; as, if the intercourse between them and us should be wholly discontinued, they could not be restored to that happy state of mediocrity in which they were found. It seemed to him that it was become in a manner incumbent on the Europeans to visit these islands once in three or four years, in order to supply them with those conveniences of which they have taught them the use. It is indeed to be apprehended, that by the time the iron tools which were then among them are worn out, they will have forgot the use of their own; as in this last voyage it was observed that the use of their former tools was almost totally abolished.

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Christmas
Island discovered.

Having left the Society Islands, Captain Cook now proceeded to the northward, crossing the equator on the 22d and 23d of December; and on the 24th discovered a low uninhabited island about 15 or 20 leagues in circumference. Here the longitude and latitude were exactly determined by means of an eclipse of the sun. The west side of it where the eclipse was observed, lies in N. Lat. 1. 59. E. Long. 202. 30. From the time of its discovery it obtained the name of *Christmas Island*. Plenty of turtle were found upon it, and the Captain caused the seeds of the cocoa-nut, yams, and melons, to be planted.

88
Sandwich
Isles.

Proceeding still to the northward, our navigator next fell in with five islands, to which he gave the general name of *Sandwich Isles*, in honour of his patron. Their names in the language of the country are Woa-hoo, Atooi, Oneehew, Oreehoua, and Tehoora. They are situated in the latitude of 21. 30. and 22. 15. North, and between 199. 20. and 201. 30. E. Long. The longitude was deduced from no fewer than 72 sets of lunar observations. The largest of these islands is Atooi, and does not in the least resemble the other islands of the South Sea formerly visited by our navigator, excepting only that it has hills near the centre, which slope gradually towards the sea-side. The only domestic animals found upon it were hogs, dogs, and fowls. Captain Cook designed to have made the inhabitants of this island a present of some
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others; but being driven out of it by stress of weather, he was obliged to land them upon a smaller one named *Oneehew*. They were a he-goat with two females, and a boar and sow of the English breed, which is much superior to that of the South Sea Islands. He left also the seeds of melons, pumpkins, and onions. The soil of this island seemed in general to be poor: it was observable that the ground was covered with shrubs and plants, some of which had a more delicious fragrantcy than had been experienced before. The inhabitants of these islands are much commended, notwithstanding their horrid custom of eating human flesh. In every thing manufactured by them there is an ingenuity and neatness in an uncommon degree; and the elegant form and polish of some of their fishing-hooks could not be exceeded by an European artist, even assisted by all his proper tools. From what was seen of their agriculture also, it appeared that they were by no means novices in that art, and that the quantity and goodness of their vegetable productions might with propriety be attributed as much to their skilful culture as to the fertility of the soil. The language of the Sandwich Isles is almost identically the same with that of Otaheite.

Proceeding farther to the northward, our navigators discovered the coast of New Albion on the 7th of March 1778. Its appearance was very different from that of the countries with which they had hitherto been conversant. The land was full of mountains, the tops of which were covered with snow; while the valleys between them, and the grounds on the sea-coast, high as well as low, were covered with trees, which formed a beautiful prospect as of one vast forest. The place where they landed was situated in N. Lat. 44. 33. E. Long. 235. 20. At first the natives seemed to prefer iron to every other article of commerce; but at last they showed such a predilection for brass, that scarcely a bit of it was left in the ships except what belonged to the necessary instruments. It was observed also, that these people were much more tenacious of their property than any of the savage nations that had hitherto been met with, insomuch that they would part neither with wood, water, grass, nor the most trifling article, without a compensation, and were sometimes very unreasonable in their demands; with which, however, the Captain always complied as far as was in his power.

The place where the Resolution was now anchored was by our navigator called *St George's Sound*, but he afterwards understood that the natives gave it the name of *Nootka*. Its entrance is situated in the east corner of Hope Bay, in N. Lat. 49. 33. E. Long. 233. 12. The climate, as far as they had an opportunity of observing it, was much milder than that on the eastern coast of the American continent in the same parallel of latitude; and it was remarkable that the thermometer, even in the night, never fell lower than 42°, while in the day-time it frequently rose to 60°. The trees met with here are chiefly the Canadian pine, white cypress, and some other kinds of pine. There seemed to be a scarcity of birds, which are much harassed by the natives, who ornament their clothes with the feathers, and use the flesh for food. The people are no strangers to the use of metals, having iron tools in general use among them; and Mr Gore procured two silver spoons of a construction similar to what may be observed in some
Flemish

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American
coast discovered.90
Nootka
Sound.91
Mildness of
the climate.92
Natives acquainted
with the
use of metals.

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Discoveries.

Flemish pictures, from a native who wore them round his neck as an ornament. It is most probable that these metals have been conveyed to them by the way of Hudson's Bay and Canada: nor is it improbable that some of them have been introduced from the north-western parts of Mexico.

While Captain Cook sailed along this coast, he kept always at a distance from land when the wind blew strongly upon it; whence several large gaps were left unexplored, particularly between the latitudes of 50 and 55. The exact situation of the supposed straits of Anian was not ascertained, though there is not the least doubt, that if he had lived to return by the same way in 1779, he would have examined every part with his usual accuracy. On departing from Nootka Sound, our navigator first fell in with an island in N. Lat. 59. 49. E. Long. 216. 58. to which he gave the name of *Kay's Island*. Several others were discovered in the neighbourhood; and the ship came to an anchor in an inlet named by the Captain *Prince William's Sound*. Here he had an opportunity of making several observations on the inhabitants, as well as on the nature of the country. From every thing relative to the former, it was concluded, that the inhabitants were of the same race with the Esquimaux or Greenlanders. The animals were much the same with those met with at Nootka, and a beautiful skin of one animal, which seemed to be peculiar to the place, was offered to sale. Mr Anderson was inclined to think that it was the same to which Mr Pennant has given the name of the *casan marmot*. The alcedo, or great king's-fisher, was found here, having very fine and bright colours. The humming-bird also came frequently, and flew about the ship when at anchor; though it is scarce to be supposed that it can live throughout the winter on account of the extreme cold. The water-fowl were in considerable plenty; and there is a species of diver which seemed to be peculiar to the place. Almost the only kinds of fish met with in the place were stork and halibut. The trees were chiefly the Canadian and spruce pine, some of which were of a considerable height and thickness. The Sound is judged by Captain Cook to occupy a degree and a half of latitude and two of longitude, exclusively of its arms and branches, which were not explored. There was every reason to believe that the inhabitants had never been visited by any European vessel before; but our navigator found them in possession not only of iron but of beads, which it is probable are conveyed to them across the continent from Hudson's Bay.

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Cook's river.
Soon after leaving Prince William's Sound, our navigators fell in with another inlet, which it was expected would lead either to the northern sea or to Hudson's or Baffin's Bay; but upon examination it was found to end in a large river. This was traced for 210 miles from the mouth, as high as N. Latitude 61. 30. and promises to vie with the most considerable ones already known, as it lies open by means of its various branches to a very considerable inland communication. As no name was given by our commander to this river, it was ordered by Lord Sandwich to be named *Cook's River*. The inhabitants seemed to be of the same race with those of Prince William's Sound; and like them had glass beads and knives, they were also clothed in very fine furs; so that it

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seemed probable that a valuable fur-trade might be carried on from that country. Several attempts have accordingly been made from the British settlements in the East Indies to establish a traffic of that kind; but little benefit accrued from it except to the proprietors of the first vessel, her cargo having greatly lowered the price of that commodity in the Chinese market. It must be observed, that on the western side of the American continent, the only valuable skins met with are those of the sea-otter; those of the other animals, especially foxes and martins, being of an inferior quality to such as are met with in other parts.

Proceeding farther to the northward, our navigators now fell in with a race of people who had evidently been visited by the Russians, and seemed to have adopted from them some improvements in dress, &c. In the prosecution of this part of their voyage, it appeared that they had been providentially conveyed in the dark through a passage so dangerous, that our commander would not have ventured upon it in the day time. They were now got in among those islands which had lately been discovered by Captain Beering and other Russian navigators, and came to an anchor in an harbour of Oonalashka, situated in N. Lat. 53. 55. E. Long. 193. 30. Here it was remarked that the inhabitants had as yet profited very little by their intercourse with the Russians; so that they did not even dress the fish they used for their food, but devoured them quite raw.

From Oonalashka our navigator proceeded again towards the continent, which he continued to trace as far as possible to the northward. In the Lat. of 54. 48. E. Long. 195. 45. N. Lat. is a volcano of the shape of a perfect cone, having the crater at the very summit. On the coast farther to the north the soil appears very barren; producing neither tree nor shrub, though the lower grounds are not destitute of grass and some other plants. To a rocky point of considerable height, situated in N. Lat. 58. 42. E. Long. 197. 36. our commander gave the name of *Cape Newnham*.

Here Mr Anderson, the surgeon of the Resolution, died of a consumption under which he had laboured for more than twelve months. Soon after he had breathed his last, land being seen at a distance, it was named *Anderson's Island*; and on the 9th of August the ship anchored under a point of the continent, which he named *Cape Prince of Wales*. This is remarkable for being the most westerly point of the American continent hitherto known. It is situated in N. Lat. 65. 46. E. Long. 191. 45. It is only 39 miles distant from the eastern coast of Siberia; so that our commander had the pleasure of ascertaining the vicinity of the two continents to each other, which had only been imperfectly done by the Russian navigators. Setting sail from this point next day, he steered to the west and north, when he soon fell in with the country of the Tschutski, which had been explored by Beering in 1728. Here he had an opportunity of correcting M. Stœhlin's map, who had placed in these seas an imaginary Island, on which he bestowed the name of *A-laschka*. Being convinced that the land he had now reached was part of the Asiatic continent, our commander directed his course eastward, in order to fall in with that of America; and on the 17th reached the latitude of 70. 33. and E. Long. 197. 41. Here they

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They fall in with the islands discovered by the Russians.96
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Cape Prince of Wales.98
Vicinity of the continents of Asia and America.

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The progress northward stopped by ice.

they began to perceive that brightness in the horizon called by mariners the *blink of the ice*; and in 70. 41. they had got quite up to it, so that no farther progress could be made. Next day they made a shift to get as far as 70. 44; but the ice was now as compact as a wall, and about ten or twelve feet in height. Its surface was extremely rugged, and farther to the northward appeared much higher. Its surface was covered with pools of water; and great numbers of sea-lions lay upon it, whose flesh they were now glad to use as food. Our commander continued to traverse the Icy Sea till the 29th; but the obstructions becoming every day greater and greater, it was thought proper to give over all further attempts of finding a passage to Europe for that year. He did not, however, omit the investigation of the Asiatic and American coasts until he had fully ascertained the accuracy of Captain Beering's accounts as far as he went, and corrected the errors of M. Stæhlin. Great additions were thus made to the geographical knowledge of this part of the globe, and Mr Cox observes, that "it reflects no small honour upon the British name, that our great navigator extended his discoveries much farther in one expedition, and at so great a distance from the point of his departure, than the Russians accomplished in a long series of years, and in parts belonging or contiguous to their own empire."

100
Arrival at Oonalashka.

An end of this celebrated navigator's discoveries, however, was now at hand. From Beering's straits he sailed for Oonalashka, where he arrived on the 2d of October, and staid for some time in order to repair his ships. While the carpenters were employed in this work, one third of the people had permission to go on shore by turns, in order to gather berries, with which the island abounds, and which, though now beginning to decay, were of great service, in conjunction with the spruce-beer, to preserve the people from the scurvy. Such a quantity of fish was likewise procured, as not only served to supply the ships for the present, but likewise allowed a great number to be carried out to sea; so that hence a considerable saving was made of the provisions of the ships, which was an article of very considerable consequence. On the 8th of the month our commander received a very singular present from some persons unknown, by the hands of an Oonalashka man named *Derramoushk*. It consisted of a rye-loaf, or rather a salmon-pye in the form of a loaf, and highly seasoned with pepper. This man had the like present for Captain Clerke, and each of them was accompanied with a note which none on board could understand: a few bottles of rum, with some wine and porter, were sent in exchange: it being supposed that such a present would be more acceptable than any other thing that could be spared. Corporal Lediard of the marines, an intelligent man, was at the same time directed to accompany *Derramoushk*, for the purpose of gaining a more satisfactory account of the country. On the tenth of the month he returned with three Russian seamen or furriers, who with several others, resided at *Egooschac*, where they had a dwelling house, some store-houses, and a sloop about 30 tons burden. One of these people was either master or mate of the vessel, and all of them were very sober and decent in their behaviour. The greatest difficulty

arose from the want of an interpreter; for which reason the conversation was carried on by signs. However, the Captain obtained a sight of two sea-charts, both of which he was allowed to copy. One of them included the sea of *Penshinik*, part of the coast of *Tartary* down to the latitude 41°; the *Kurile Islands*, and the peninsula of *Kamtschatka*. The other comprehended all the discoveries that had been made from the time of Captain *Beering* to the year 1777; but these were found to be very trifling. Indeed our navigator was assured by all the Russians whom he had occasion to see, that they knew of no other islands than those laid down in the charts just mentioned, and that none of them had ever seen any part of the American continent excepting what lies opposite to the country of the *Tschutki*. With regard to the natives of *Oonalashka*, they are to appearance the most inoffensive and peaceable people in the world, not to be in a state of civilization; though perhaps this may be owing in some measure to the connection they have long had with the Russians. From the affinity observed between the language of the *Esquimaux* *Greenlanders*, and those of *Norton's Sound* in N. Lat. 64. 55. there is great reason to believe that all those nations are of the same extraction; and if that be the case, there is little reason to doubt that a communication by sea exists between the eastern and western sides of the American continent; which, however, may very probably be shut up by ice in the winter time, or even for the most part throughout the year.

The return of Captain Cook to the *Sandwich Islands*, with the lamentable catastrophe that ensued, have been already related under the former article. We shall now briefly enumerate the consequences of his discoveries with respect to the advancement of science. There are principally his having overthrown the hypothesis of a southern continent of immense extent, usually spoken of under the name of *Terra australis incognita*; his demonstration of the impracticability of a northern passage either by Asia or America to the East Indies; and his having established a sure method of preserving the health of seamen through the longest sea-voyages. It is remarked by the bishop of *Carlisle*, that one great advantage resulting from the late surveys of the globe, is the refutation of fanciful theories too likely to give birth to impracticable undertakings. The ingenious reveries of speculative philosophers will now be obliged to submit, perhaps with reluctance, to the sober dictates of truth and experience; nor is it only by discouraging future unprofitable searches that the late voyages are likely to be of service to mankind, but likewise by lessening the dangers and distresses formerly experienced in those seas which are within the actual line of commerce and navigation.

The interests of science, as well as of commerce, are highly indebted to the labours of our illustrious navigator. Before his time almost half the surface of the globe was involved in obscurity and confusion: but now such improvements have been made, that geography has assumed a new face, and become in a manner a new science; having attained such completeness as to leave only some less important parts to be explored by future voyagers. Other sciences besides geography

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Consequences of Captain Cook's discoveries.

have

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have been advanced at the same time. Nautical astronomy, which was in its infancy when the late voyages were undertaken, is now brought to much greater perfection; and, during Captain Cook's last expedition, many even of the petty officers could take the distance of the moon from the sun or from a star, the most delicate of all observations, with sufficient accuracy; and the officers of superior rank would have been ashamed to have it thought that they did not know how to observe for, and compute, the time at sea; a thing before hardly mentioned among seamen. It must, however, be remembered, that a great part of the merit in this respect is due to the board of longitude. In consequence of the attention of that board to the important object just mentioned, liberal rewards have been given to mathematicians for perfecting the lunar tables and facilitating calculations; and artists have been amply encouraged in the construction of watches, and other instruments better adapted to the purposes of navigation than any that formerly existed.

A vast addition of knowledge has been gained with respect to the ebbing and flowing of the tides; the direction and force of the currents at sea; the nature of the polarity of the needle, and the cause of its variations. Natural knowledge has been increased by experiments on the effects of gravity in different and very distant places; and from Captain Cook's having penetrated so far into the southern regions, it is now ascertained, that the phenomenon usually called the *aurora borealis*, is not peculiar to high northern latitudes, but belongs equally to all cold climates, whether north or south.

No science, however, perhaps stands more indebted to these voyages than that of botany. At least 1200 new species of plants have been added to those formerly known; and every other department of natural history has received large additions. Besides all this, there have been a vast many opportunities of observing human nature in its different situations. The islands visited in the middle of the Pacific Ocean are inhabited by people who, as far as could be observed, have continued unmixed with any different tribe since their first settlement. Hence a variety of important facts may be collected with respect to the attainments and deficiencies of the human race in an uncultivated state, and in certain periods of society. Even the curiosities brought from the newly discovered islands, and which enrich the British museum and the late Sir Ashton Lever's (now Mr Parkinson's) repository, may be considered as a valuable acquisition to this country, and affording no small fund of instruction and entertainment.

There are few inquiries more generally interesting than those which relate to the migrations of the various colonies by which the different parts of the earth have been peopled. It was known in general, that the Asiatic nation called the *Malayans* possessed in former times much the greatest trade of the Indies, and that their ships frequented not only all the coasts of Asia, but even those of Africa likewise, and particularly the large island of Madagascar; but that from Madagascar to the Marquesas and Easter Island, that is, nearly from the east side of Africa till we approach the west coast of America, a space including almost half the circumference of the globe, the same nation of the oriental world should have made their settle-

ments, and founded colonies throughout almost every intermediate stage of this immense tract, in islands at amazing distances from the mother continent, is an historical fact that before Captain Cook's voyages could not be known, or at least but very imperfectly. This is proved, not only by a similarity of manners and customs, but likewise by the affinity of language; and the collections of words which have been made from all the widely-diffused islands and countries visited by Captain Cook, cannot fail to throw much light on the origin of nations, and the manner in which the earth was at first peopled.

Besides this, information has been derived concerning another family of the earth formerly very much unknown. This was the nation of the Esquimaux or Greenlanders, who had formerly been known to exist only on the north-eastern part of the American continent. From Captain Cook's accounts, however, it appears, that these people now inhabit also the coasts and islands on the west side of America opposite to Kamtschatka. From these accounts it appears also, that the people we speak of have extended their migrations to Norton Sound, Oonalashka, and Prince William's Sound; that is, nearly to the distance of 1500 leagues from their stations in Greenland and the coast of Labrador. Nor does this curious fact rest merely on the evidence arising from the similitude of manners; for it stands confirmed by a table of words, exhibiting such an affinity of language as must remove every doubt from the mind of the most scrupulous inquirer.

From the full confirmation of the vicinity of the two great continents of Asia and America, it can no longer be supposed ridiculous to believe, that the latter received its inhabitants from the former; and by the facts recently discovered, a degree of further evidence is added to those which might formerly be derived from nature concerning the authenticity of the Mosaic accounts. It is not indeed to be doubted, that the inspired writings will stand the test of the most rigorous investigation; nor will it ever be found, that true philosophy and Divine Revelation can militate against each other. The rational friends of religion are so far from dreading the spirit of inquiry, that they wish for nothing more than a candid and impartial examination of the subject, according to all the lights which the improved reason and enlarged science of man can afford.

Another good effect of the voyages of Captain Cook is, that they have excited in other nations a zeal for similar undertakings. By order of the French government, Mess. de la Peyrouse and de Langle sailed from Brest in August 1785, in the frigates *Bouffole* and *Astrolobe*, on an enterprise, the purpose of which was to improve geography, astronomy, natural history, and philosophy, and to collect an account of the customs and manners of different nations. For the more effectual prosecution of the design, several gentlemen were appointed to go out upon the voyage, who were known to excel in different kinds of literature. The officers of the *Bouffole* were men of the best information and firmest resolution; and the crew contained a number of artificers in various branches of mechanics. Marine watches, &c. were provided, and M. Dagelet the astronomer was particularly directed to make observations with M. Condamine's invariable pendulum,

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ries.

to determine the difference in gravity, and to ascertain the true proportion of the equatorial to the polar diameter of the earth. It has likewise been made evident, that notwithstanding all that has been done by Captain Cook, there is still room for a farther investigation of the geography of the northern parts of the world. The object accordingly was taken up by the Empress of Russia, who committed the care of the enterprize to Captain Billings an Englishman in her majesty's service. We shall only make one observation more concerning the benefits likely to accrue from the voyages of Captain Cook, and that is relative to the settlement in Botany Bay. Whatever may be supposed to accrue to the nation itself from this settlement, it must undoubtedly give the highest satisfaction to every friend to humanity to be informed, that thus a number of unhappy wretches will be effectually prevented from returning to their former scenes of temptation and guilt, which may open to them the means of industrious subsistence and moral reformation. If the settlement be conducted with wisdom and prudence, indeed it is hard to say what beneficial consequences may be derived from it, or to what height it may arise. Rome, the greatest empire the world ever saw, proceeded from an origin little, if at all, superior to Botany Bay. For an account of this settlement see the article *New-Holland*.

One other object remains only farther to be considered with regard to these voyages, and that is the advantages which may result from them to the discovered people. Here, however, it may perhaps be difficult to settle matters with precision. From the preceding accounts, it must be evident that the intentions of Captain Cook were in the highest degree benevolent; and if at any time the people were the sufferers, it must have been through their own fault. In one instance indeed it might be otherwise, and that is with respect to the venereal disease. The evidence in this case cannot be altogether satisfactory. Mr Samwell, who succeeded Mr Anderson as surgeon of the Resolution, has endeavoured to show, that the natives of the lately explored parts of the world, and especially of the Sandwich islands, were not injured by the English; and it was the constant care and solicitude of Captain Cook to prevent any infection from being communicated to the people where he came. But whether he was universally successful in this respect or not, it is evident that the late voyages were undertaken with a view exceedingly different from those of former times. The horrid cruelties of the Spanish conquerors of America cannot be remembered without concern for the cause of religion and human nature; but to undertake expeditions with a design of civilizing the world, and meliorating its condition, is certainly a noble object. From the long continued intercourse betwixt this country and the South Sea islands, there cannot be any doubt that some degree of knowledge must already have been communicated to them. Their stock of ideas must naturally be enlarged by the number of uncommon observations which has been presented to them, and new materials furnished for the exercise of their rational faculties. A considerable addition must be made to their immediate comfort and enjoyment by the introduction of useful animals and vegetables; and if the only benefit they should ever receive from Bri-

tain should be the having obtained fresh means of subsistence, this of itself must be considered as a valuable acquisition. Greater consequences, however, may soon be expected. The connection formed with these people may be considered as the first step towards their improvement; and thus the blessings of civilization may be spread among the various tribes of Indians in the pacific Ocean, which in time may prepare them for holding an honourable place among the nations of the earth.

As a supplement to this account of the discoveries made by Captain Cook himself, we shall here subjoin a narrative of the subsequent part of the voyage by Captain Clerke, &c. until the return of the ships to England. At the time of Captain Cook's death, the great point of a north-west passage remained in some measure to be still determined: for though, by the event of the former attempt, it had been rendered highly improbable that they should succeed in this, it was still resolved to try whether or not, at certain seasons of the year, the ice might not be more open than they had hitherto found it. The first object that naturally occurred, however, was the recovery of Captain Cook's body; for which Mr King was of opinion that some vigorous measure ought instantly to be pursued. His motives for this, besides the personal regard he had for the Captain, were to abate the confidence which must be supposed to ensue on the part of the natives, which would probably incline them to dangerous attempts; and this the more particularly, as they had hitherto discovered much less fear of the fire-arms than other savage nations were accustomed to do. Mr Samwell also takes notice of the intrepidity of the natives in this respect; but ascribes it, in the first instance, to ignorance of their effects; and in the next, to a notion, that as the effects of these arms were occasioned by fire, they might be counteracted by water. For this purpose they dipped their war-mats in water; but finding themselves equally vulnerable after this method had been pursued, they became more timid and cautious.

As matters stood at present, there was even reason to dread the consequences of a general attack upon the ships: and therefore Mr King was the more confirmed in his opinion of the necessity of doing something to convince them of the prowess of their adversaries. In these apprehensions he was seconded by the opinion of the greater part of the officers on board; and nothing seemed more likely to encourage the islanders to make the attempt than an appearance of being inclined to an accommodation, which they would certainly attribute to weakness or fear. Captain Clerke, however, and those who were in favour of conciliatory measures, urged, that the mischief was already irreparable; that the natives, by reason of their former friendship, had a strong claim to the regard of the English; and that the more particularly, as the late calamitous accident did not appear to have taken its rise from any premeditated design: they urged also the ignorance of the king concerning the theft, and the mistake of the islanders who had armed themselves on a supposition that some attempt would be made to carry off the king. To all this was added, that the ships were in want of refreshments, particularly water; that the Resolution's foremast would require seven or eight days before it could be properly repaired; and as the spring was fast advancing, the speedy prosecution of the voyage to the northward ought

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Clerke's
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Methods
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the reco-
very of
Captain
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ought now to be the only object; that a vindictive contest with the natives might not only justify an imputation of needless cruelty, but would occasion great delay in the equipment of the ships.

In consequence of the prevalence of these sentiments lenient measures were adopted, though the behaviour of the natives continued to be very insolent. A great body still kept possession of the shore; many of whom came off in their canoes within pistol-shot of the ships, and provoking the people by every kind of insult and defiance. A train of negotiations for Captain Cook's body took place; in which the natives showed the most hostile and treacherous disposition, and, as afterwards appeared, had cut the flesh from the bones and burnt it. A piece of about ten pounds weight was brought by two natives at the hazard of their lives, who gave information that the rest had been burnt, and that the bones were in the possession of the king and some of the principal chiefs. Information was given, at the same time, that the chiefs were very desirous of war in order to revenge the death of their countrymen.

Thus it appeared that the pacific plan had answered no good purpose. No satisfactory answer had been given to the demands made of the bodies of the slain; nor was any progress made in the great work intended, viz. a reconciliation with the natives; they still remained on shore in an hostile posture, as if determined to oppose any endeavours that might be made by our people to land; at the same time that a landing was become absolutely necessary, in order to complete the stock of water. Had this spiritless conduct been persisted in, there is not the least doubt that neither this purpose or any other could have been effected. The insolence of the natives became every day greater and greater; insomuch that one of them had the audacity to come within musket shot of the Resolution, and, after throwing several stones, waved Captain Cook's hat over his head, while his countrymen on shore were exulting and encouraging his audacity. By this insult the people were so highly enraged, that, coming on the quarter-deck in a body, they begged that they might no longer be obliged to put up with such reiterated provocation, but might be allowed to make use of the first opportunity of revenging the death of their Captain. The necessity of more vigorous measures, therefore, being now apparent, a few discharges of the great guns, with the burning of a village and some other acts of severity, at last produced the mangled remains of Captain Cook. They were wraped up in a bundle, in which were found both his hands entire, which were easily known by a scar in one of them dividing the fore-finger from the thumb the whole length of the metacarpal bone. Along with these was the skull, but with the scalp separated from it, and the bones of the face wanting; the scalp, with the ears adhering to it, and the hair cut short; the bones of both the arms, and the skin of the fore-arms hanging to them; the bones of the thighs and legs joined together, but without the feet. The ligaments of the joints were observed to be entire; the whole showing evident marks of being in the fire, except the hands which had the flesh remaining upon them, and were cut in several places and crammed with salt, most probably for the purpose of preserving them. The skull was not fractured; but the scalp had a cut in the back

part of it. The lower jaw and feet were wanting, having been seized by different chiefs.

Having accomplished the purposes of their stay in this place, Captain Clerke set sail from Karakakooa bay in O-whyhee towards Mowee, with a design to explore the coasts of that island more fully than had been done, but were unable to accomplish their purpose: nor indeed was it in their power to accomplish any discovery of consequence among these islands. The only intelligence worth mentioning which they were able to procure was, that wars had ensued about the property of the goats which were left by Captain Cook on the island of Oneehow, as has been already mentioned, and that during the contest all these poor animals, who had already begun to multiply, were destroyed; so that the benevolent attempts of our illustrious navigator in favour of these islanders had proved abortive.

On quitting the island of Oneehow, our navigators set sail for another named MODOOPAPAPPA, which they were assured by the natives lay within five hours sailing of Tahoorā, a small island in the neighbourhood of Oneehow. In this they proved unsuccessful; on which it was determined to steer for the coast of Kamtschatka. In the passage thither they arrived at the place where de Gama is said to have discovered a great extent of land; but of this they could discover no appearance. This imaginary continent is said to have been discovered by a navigator called John de Gama, but who seems also to have been imaginary, as no person can find out either the country where he lived, or the time when he made the discovery. We are informed by Muller, that the first account of it was published by Texeira in a chart of 1649, who places it between the latitude of 44 and 45 degrees, and about 160 E. Long. and calls it "land seen by John de Gama, in a voyage from China to New Spain."

By the French geographers it is removed five degrees farther to the east. When they arrived at Kamtschatka they were entertained in the most hospitable manner, and furnished with every thing that could be procured in that desert and barren region. "In this wretched extremity of the earth (says the narrator of the voyage,) beyond conception barbarous and inhospitable, out of the reach of civilization, bound and barricaded with ice, and covered with summer snow, we experienced the tenderest feelings of humanity, joined to a nobleness of mind and elevation of sentiment which would have done honour to any clime or nation." From major Behm, in particular, they received so many and so great obligations, that an handsome acknowledgment was made him by the Royal Society, as has been already observed. Even the sailors were so struck with his gratitude, that they voluntarily requested that their allowance of grog might be withheld, in order to complete the garrison of Bolchertsk with the spirits; saying, that they knew brandy was extremely scarce in that country, the soldiers on shore having offered four roubles a bottle for it. The officers, however, would not allow them to suffer by their generosity in this inclement country and season of the year (the month of march not being yet expired;) but in room of the small quantity of brandy which Major Behm consented to accept, substituted an equal quantity of rum.

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Unsuccessful attempts to make farther discoveries.

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Their favourable reception at Kamtschatka.

106
His remains at last obtained.

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Discoveries.109
Tschutski
submit to
the Em-
press.

It is worth observing, that the kindness with which the empress had ordered the British navigators to be treated in this part of her dominions was amply rewarded even with no less than the addition of a new kingdom to the Russian empire, which hitherto her arms had not been able to subdue. Among the northern Asiatics none had been able to maintain their independence except the Tschutski, who inhabit the north-east extremity of the continent. No attempt to subdue these people had been made since the year 1750, when the Russian forces had at last been obliged to retreat, after having lost their commanding officer. The Russians afterwards removed their frontier fortresses from the river Anadyr to the Ingiga, which runs into the northern extremity of the sea of Okotsk, and gives its name to a gulf to the west of the sea of Peshinsk. On the day that Captains Clerke and Gore arrived at Bolcharetsk, Major Behm received dispatches from this fort, acquainting him that a party of the Tschutski had been there with voluntary offers of friendship and a tribute. That on asking the reason of such an unexpected alteration in their sentiments, they had acquainted his people, that two large Russian boats had visited them towards the end of the preceding summer; that they had been shown the greatest kindness by the people who were in them, and had entered into a league of amity with them; and that, in consequence of this, they came to the Russian fort in order to settle a treaty upon terms agreeable to both nations. This incident had occasioned much speculation, and could never have been understood without the assistance of those who were now present; the large Russian boats having been in truth no other than the Resolution and Discovery, under Captains Cook and Clerke.

110
Vast quan-
tity of fish.

About the middle of May the snow began to melt very fast in this inhospitable region, and the ships being now on their passage northward, met with an excellent opportunity of supplying themselves with fish. The beach was cleared of ice on the 15th of the month; from which time vast quantities came in from every quarter. Major Behm had ordered all the Kamtschadales to employ themselves in the service of the English ships; so that often they found it impossible to take on board the quantities that were sent. They chiefly consisted of herrings, trout, flat fish, and cod. These fish were here found in such plenty, that once the people of the Discovery surrounded such an amazing quantity with the seine, that they were obliged to throw out a very considerable number, lest the net should have been broken to pieces; and the cargo was still so abundant, that, besides having a stock for immediate use, they filled as many casks as they could conveniently spare for salting; and after sending on board the Resolution a tolerable quantity for the same purpose, they left behind several bushels on the beach.

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Spiritu-
ous
liquors per-
nicious in
the sea-
scurvy.

While they remained in this country an opportunity offered of observing the pernicious effects of spirituous liquors in producing the sea-scurvy. All the Russian soldiers were in a greater or lesser degree afflicted with that disorder, some of them being in the last stage of it; and it was particularly observed that a serjeant, with whom our people had kept up a most friendly intercourse, had, in the course of a few days, brought upon himself the most alarming scorbutic symptoms, by drinking too freely of the liquors with

which he had been presented by the English. Captain Clerke soon relieved them, by putting them under the care of the surgeons of the ships, and supplying them with four-kroot, and malt for sweet-wort. In consequence of this a surprising alteration was soon observed in the figures of most of them: and their speedy recovery was principally attributed to the sweet wort.

On the 12th of June they began to proceed northward along the coast of Kamtschatka, and three days after had an opportunity of observing an eruption of one of the volcanoes of that peninsula. On the 15th before day light, they were surprised with a rumbling noise like distant thunder; and when the day appeared, found the decks and sides of the ships covered near an inch thick with fine dust like emery. The air was at the same time loaded and obscured with this substance; and in the neighbourhood of the volcano itself, it was so thick that the body of the hill could not be discovered. The explosion became more loud at 12 o'clock, and during the afternoon, being succeeded by showers of cinders, generally of the size of pease, though some were as large as hazel-nuts. Along with these there also fell some small stones which had undergone no alteration from the action of the fire. In the evening there were dreadful claps of thunder, with bright flashes of lightning, which, with the darkness of the sky, and the sulphureous smell of the air, produced a most awful and tremendous effect. The ships were at this time about 24 miles distant from the volcano; and it appeared that the volcanic shower had been carried to a still greater distance, as they next day found the bottom of the sea to consist of such small stones as had fallen upon the decks of the ships. The mountain was still observed to be in a state of eruption on the 18th.

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Discoveries.112
Eruption
of a vol-
cano.

For some time Captain Clerke kept the coast of Kamtschatka in view, with a design to make an accurate survey of it; but in this he was disappointed by foggy and squally weather; however, he determined the position of some remarkable promontories, and at last finding the season too far advanced to accomplish his design, set sail for Bering's Straits, chiefly with a view to ascertain the situation of the projecting points of the coast.

On the 3d of July our navigators came in sight of the island of St Lawrence, and another which was supposed to lie between it and Anderson's island. The latter being entirely unknown to Captain Clerke, he was inclined to have approached it, but was unable to effect his purpose. All these islands, as well as the coast of the Tschutski on the continent were covered with snow, and had a dismal appearance.

In the preceding year Captain Cook had determined the situation of the islands of St Diomed to be in 65° 48' latitude; but now being somewhat at a loss to reconcile this with the position of the continent, they stood for some time over to the latter, till fully convinced of the accuracy of the former observation. At this time they approached within two or three leagues of the eastern cape of Asia, which is an elevated round head of land extending about five miles from north to south, and forms a peninsula connected with the continent by a narrow isthmus of low land. It has a bold shore, and three lofty detached spiral

113
Voyage to
the north-
ward.

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spiral rocks are seen off its northern part. It was still encompassed with ice, and is covered with snow. Here they found a strong current setting to the northward, which at noon had occasioned an error in the computation of the latitude of no less than 20 miles. A similar effect had been observed the preceding year in passing this strait. On steering to the north-east the weather cleared up, so that they had a view of the eastern cape of Asia, Cape Prince of Wales on the western coast of America, with a remarkable peaked hill on the latter, and the two islands of St Diomedé lying between them. Here they met with great numbers of very small hawks, having a compressed bill rather large in proportion to the body; the colour dark brown, or rather black, the breast whitish, and towards the abdomen of a reddish hue.

114
Are stopped by the ice.

On the 6th of July at 12 o'clock, the ships were in N. Lat. 67. 0. E. Long. 191. 6. when having already passed many large pieces of ice, and observed that in several places it adhered to the continent of Asia, they were suddenly stopped about three in the afternoon by an extensive body, which stretched towards the west. By this their hopes of reaching any higher latitude than what had been attained last year were considerably diminished; but finding the course obstructed on the Asiatic side, they proceeded to the north-eastward, in order to explore the continent of America, between the latitudes of 68° and 69°; which had last year been found impracticable on account of the foggy weather; but in this also they were partly disappointed; for on the 7th, about six in the morning, they met with another large body of ice stretching from north-west to south-east; but not long afterwards, the horizon becoming clear, they had a view of the American coast at the distance of about ten leagues, extending from north-east by east, to east, and lying between N. Lat. 68° and 68° 20'. As the ice was not very high, the view extended a great way over it, so that they could perceive it exhibiting a compact solid surface, and apparently adhering to the land. Soon after the weather became hazy, so that they lost sight of the land; and it being impossible to get nearer, they continued to steer northward close by the side of the ice. This course was continued till next morning, during which time the ships passed some drift-wood; but the morning following, the wind shifting to the north, they were obliged to stand to the westward. At two in the afternoon they were again close to an immense expanse of ice; which from the mast head seemed to consist of very large compact bodies, united towards the exterior edge, tho' in the interior parts some pieces floated in the water; it extended from west south-west to north-east by north. There was now a necessity for steering towards the south, as the strong northerly winds had drifted down such numbers of loose pieces, that they had encompassed the ships for some time, and it was impossible to avoid very severe strokes while sailing among them. Thus, however, they reached the latitude of 69. 12. and E. Long. 188. 5.; but having now sailed almost 40 leagues to the west along the edge of the ice without perceiving any opening, Captain Clerke determined to bear away south by east, the only quarter which was clear at present, and to wait till the season was somewhat farther advanced before any further attempts were made. The intermediate

time he proposed to employ in surveying the bay of St Lawrence, and the coast situated to the southward of it; as it must be a great satisfaction to have an harbour so near in case of the ships receiving any damage from the ice; and the Captain was also desirous of paying another visit to the Tschutski, especially in consequence of the accounts of them that had been given by Major Behm. In this navigation they killed several sea-horses, and had an opportunity of observing the strength of parental affection in those monstrous animals. On the approach of the boats towards the ice, all of them took their young ones under their fins, and attempted to make their escape with them into the sea. Some whole cubs were killed or wounded, and left floating upon the surface of the water, rose again, and carried them down, sometimes just as they were on the point of being taken into the boat; and could be traced bearing them to a considerable distance through the water, which was stained with their blood. They were afterwards observed bringing them at intervals above the surface, and again plunging under its surface with an horrid bellowing; and one female, whose young one had been killed and taken on board, became so furious, that she struck her tusks through the bottom of the cutter.

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Discoveries.

115
Remarkable affection of the sea-horses towards the young.

Our navigators still found themselves disappointed in their attempts. On approaching the coast of the Tschutski they met with a large and compact body of ice, extending to the north east, south-west, and south-east, as far as the eye could reach; so that they were again obliged to sail back to the northward. Here also their course was soon stopped; for, on the 13th, being in N. Lat. 69. 37. and about the middle of the channel between the two continents, they once more fell in with a compact body of ice, of which they could perceive no limit. Captain Clerke therefore determined to make a final attempt on the coast of America, the passage northward having been found last year practicable much farther on than the Asiatic side. Thus they attained the latitude of 70. 8. at the distance, as was supposed, of 25 leagues from the coast of America; and some days after got about three minutes farther to the northward, about the distance of seven or eight leagues from the Icy Cape. This, however, was the utmost limit of the voyage to the north east; and they were soon obliged to relinquish all hopes of proceeding farther on the American side. Another effort was still resolved on to try the practicability of a north-west passage; and for this purpose our navigators altered their direction on the 21st of July, passing through a great quantity of loose ice. About ten at night the main body was discovered at a very small distance, so that they were obliged to proceed to the southward. During this perilous navigation, the Discovery, after having almost got clear out from the ice, became so entangled by several large pieces, that her progress was stopped, and she immediately dropped to leeward, falling broadside foremost on the edge of a considerable body of ice, on which she struck with violence, there being an open sea to windward. At length the mass was either broken or moved so far, that the crew had an opportunity of making an effort to escape. But unluckily, before the ship gathered way sufficient to be under command, she fell to leeward a second time upon another

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The ships finally stopped by ice.

117
Dangerous situation of the Discovery.

other

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Discoveries.

other piece of ice; and the swell rendering it unsafe to ly to windward, and finding no prospect of getting clear, they pushed into a small opening, and made the vessel fast to the ice with hooks. Here the Resolution for some time lost sight of her consort, which occasioned no small uneasiness in both vessels; but at length, on a change of wind, the Discovery, setting all her sails, forced a passage, though not without losing a considerable part of her sheathing, and becoming very leaky by reason of the blows she had received.

Thus the two vessels continued to make every effort to penetrate through the immense quantities of ice with which those seas are filled winter and summer, but without success. Captain Clerke therefore finding that it was impossible either to get to the northward, or even to reach the Asiatic continent, the ships being also greatly damaged, determined to proceed southward to the bay of Awatka, on the Kamtschadale coast, to refit, and afterwards take a survey of the coasts of Japan before the winter should set in.

118
Of the extent of the Asiatic continent to the northward.

During this navigation, two general conclusions were adopted relative to the extent of the Asiatic coast, in opposition to the opinion of Mr Muller. One is, that the promontory, called the *East Cape*, is in reality the most easterly point of Asia; and that no part of that quarter of the globe extends farther than the longitude of $290^{\circ} 22'$ E. The other conclusion is, that the latitude of the most north-easterly point of Asia does not exceed 70° N. but is rather somewhat below it. As the present discoveries, however, were terminated on the Asiatic side in the 69^{th} degree of latitude, the probable direction of the coast afterwards can only be conjectured. The only sources of knowledge in this case are the Russian charts and journals; and these in general are so defective and contradictory, that the particulars of their real discoveries can scarce be collected. Hence the Russian geographers are greatly divided in their opinions concerning the extent and figure of the peninsula of the Tschutski. Mr Muller, in a map published 1751, supposes it to extend north-east as far as the latitude of 75° , and E. Long. 19° , ending in a round cape which he calls *Tschukotkoi Nofs*. To the southward of this cape he supposes the coast to form a bay to the west, bounded in the latitude of $67^{\circ} 18'$ by Serdze Kamen, the most northerly point observed by Beering in his expedition in 1728. A new form is given to the whole peninsula in a map published by the academy at Petersburg in 1776. Here its most north-easterly extremity is placed in N. Lat. 73° , E. Long. $178. 30$; and its most easterly point in N. Lat. 65° , E. Long. $189. 30$. All the other maps vary between these two situations; and the only thing in which all of them agree is the position of the east cape in N. Lat. 66° . The form of the coast, however, is very erroneous in the map published by the academy, and may be entirely disregarded. In Mr Muller's map, the northern part of the coast has some resemblance to that laid down in Captain Cook's and Clerke's survey, as far as the latter extends; only that Mr Muller does not make it trend sufficiently to the west, but supposes it to recede only five degrees of longitude between the latitudes of 66° and 69° ; whereas it really recedes almost ten.

We must next examine Mr Muller's authority for
N^o 91.

supposing the coast to bend round to the north and north-east in such a manner as to form a large promontory. — Mr Coxe, whose accurate researches into this matter must give great weight to his opinion, thinks, that the extremity of the promontory was never doubled by any person except Deshneff and his party; who sailed, in the year 1648, from the river Kovyma, and are imagined to have got round to the river Anadyr. The account of this voyage, however, gives no geographical delineation of the coast, so that its figure must be determined by other circumstances; and from these it evidently appears, that the Tschukotkoi Nofs of Deshneff is in reality the East Cape of Captain Cook. Speaking of this Nofs, he says, that a person, with a favourable wind, may sail from the isthmus to the Anadyr in three days and three nights. This agrees entirely with the situation of the East cape, which is about 120 leagues from the mouth of the river Anadyr; and there being no other isthmus to the north between that and the latitude of 69° , it seems evident, that by this description he certainly means either the East cape or some other situated to the southward of it. In another place he says, that opposite to the isthmus there are two islands upon which some of the Tschutski nation were observed, having pieces of the teeth of sea-horses fixed in their lips; and this exactly coincides with the two islands that lie to the south east of the East Cape. Our navigators indeed did not observe any inhabitants upon these islands; but it is by no means improbable, that some of those of the American coast, whom the above description perfectly suits, might have accidentally been there at the time, and been mistaken for a tribe of Tschutski.

Other circumstances, though less decisive than those just mentioned, concur in the same proof. Deshneff says, that in sailing from the Kovyma to the Anadyr, a great promontory, which projects far into the sea, must be doubled; and that this promontory extends between north and north east. From these expressions, perhaps, Mr Muller was induced to represent the country of the Tschutski in the form we find in his map; but if he had been acquainted with the position of the East cape as determined by Captain Cook, and the striking agreement between that and the promontory or isthmus in the circumstances above mentioned, it is most probable that he would not have deemed these expressions of sufficient weight to authorise his extending the north-eastern extremity of Asia either as far to the north or to the east as he has done.

Another authority used by Mr Muller seems to have been the deposition of the Cossack Popoff, taken at the Anadirskoi Ostrog in 1711. Popoff was sent by land, in company with several others, to demand tribute of the independent Tschutski tribes, who inhabited the country about the Nofs. In the account of this journey, the distance betwixt Anadirsk and Tschukotkoi Nofs is represented as a journey of ten weeks with loaded rein-deer. From such a vague account, indeed, we can judge but very little; but as the distance between the East cape and Anadirsk does not exceed 200 leagues, and consequently might be accomplished in the space above mentioned at the rate of 12 or 14 miles a-day, we cannot reckon Popoff's account of its situation inconsistent with the supposition of its being the East Cape. It may likewise be observed, that

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that Popoff's rout lay along the foot of a rock named *Matkol*, situated at the bottom of a spacious gulf, which Muller supposes to have been the bay he lays down between the latitudes of 66° and 72° ; and he accordingly places the rock *Matkol* in the centre of it; but it seems more probable that it might be a part of the gulf of Anadyr, which they would undoubtedly pass in their journey towards the East Cape.

But what seems to put the matter beyond all doubt, and to prove that the cape which Popoff visited cannot be to the northward of 69° Lat. is that part of his deposition which relates to an island lying off the Nofs, from whence the opposite coast might be discerned; for at the opposite continents, in the latitude of 69° diverge so far as to be upwards of 100 leagues distant, it is highly improbable that the Asiatic coast should again trend eastward in such a manner as to come almost in sight of that of America. As an additional proof of the position in question, we may observe, that the *Tschukotskoi Nofs* is constantly laid down as dividing the sea of Kovyma from that of Anadyr; which could not possibly be the case if any large cape had projected to the north-east in the higher latitudes.

The next question to be determined is, to what degree of latitude the northern coast of Asia extends before it inclines directly westward? Captain Cook was always strongly inclined to believe, that the northern coast of this continent, from the *Indigirka* eastward, has hitherto been usually laid down above 2 degrees to the northward of its true situation; for which reason, and on the authority of a map that was in his possession, as well as from intelligence received at *Oonalaishka*, he placed the mouth of the Kovyma in the latitude of 68° . Should he be right in his conjecture, it is probable that the coast of Asia does not any where extend beyond the Lat. of 70° before it trends to the west; and consequently our navigators must have been only one degree from its northern extremity. This seems to be confirmed by the silence of the Russian navigators concerning any extent of continent to the northward of *Shelatskoi Nofs*; nor do they mention any remarkable promontory, except the East Cape between the Anadyr and the Kovyma. Another particular which *Deshneff* relates may perhaps be deemed a farther confirmation of this opinion, viz. that he met with no obstruction from ice in sailing round the northern extremity of Asia; though he adds, that this sea is not at all times so free of it, which indeed appears evidently to be the case. That part of the continent which lies between Cape North and the mouth of the Kovyma is about 125 leagues in extent. A third part of this space, from Kovyma eastward, was explored in the year 1723 by *Feodot Amossoff*, who informed Mr Muller that its direction was easterly. Since that time it has been surveyed with some accuracy by *Shalauoff*, whose chart makes it trend north-east-by-east as far as *Shelatskoi Nofs*, which he places at the distance of about 43 leagues east of the Kovyma. The space therefore, between the Nofs and Cape North, somewhat more than 80 leagues, is the only part of the Russian dominions now remaining unexplored. But if the Kovyma be erroneously laid down in point of longitude as well as latitude, a supposition far from being improbable, the extent of the undiscovered coast will be considerably diminished.

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The following are the reasons why it may be supposed that the mouth of Kovyma is placed too far to the westward in the Russian charts: 1. Because the accounts that have been given of the navigation of the Frozen Ocean from that river round the north-eastern extremity of Asia to the Gulf of Anadyr, do not agree with the supposed distance between those places. 2. Because the distance from the Anadyr to the Kovyma over land is by some Russian travellers represented as a journey of no very great length, and easily performed. Because the coast from the *Shelatskoi Nofs* of *Shalauoff* appears to trend directly south-east towards the East Cape. From all which it may be inferred, with some degree of probability, that only 60 miles of the northern Asiatic coast remain to be explored.

With regard to a north-west passage from the Atlantic into the Pacific Ocean, it is highly probable that no such thing exists to the southward of the 56th degree of latitude. If, in reality, it exists any where, it must certainly be either through *Baffin's bay*, or by the north of Greenland in the western hemisphere, or in the eastern, through the frozen sea to the north of Siberia; so that in whichever continent it is seated the navigator must pass through *Beering's Straits*.

All that remains now to be considered therefore is, the impracticability of penetrating into the Atlantic Ocean through these Straits. From the voyages of our navigators it appears, that the sea to the northward of *Beering's Straits* is more free from ice in August than in July, and perhaps may be still more so in some part of September. But after the autumnal equinox, the length of the day diminishes so fast, that no farther thaw can be expected; and it would be unreasonable to attribute so great an effect to the warmth of the last fortnight of September as to imagine it capable of dispersing the ice from the most northern part of the American coast. Even admitting this to be possible, it must at least be allowed that it would be highly imprudent to endeavour to avoid the Icy Cape, by running to the known parts of *Baffin's Bay*, a distance of about 1260 miles, in so short a time as that passage can be supposed to be open. On the side of Asia there appears still less probability of success, as appears from the testimony of the Russian as well as the English navigators. The voyage of *Deshneff* indeed proves the possibility of circumnavigating the north-eastern extremity of Asia; but even this affords a very slender foundation to hope for any great benefit, as no person besides himself appears to have succeeded in the attempt, though more than a century and a half has now elapsed since the time of his voyage. But even supposing that, in some very favourable season, this cape might be doubled, still the cape of *Taimura* remains, extending as far as the 78th degree of latitude, and round which none pretend ever to have sailed.

These arguments seem conclusive against any expectation of a north-west or north-east passage to the East Indies, unless on the supposition of an open sea very near the polar regions. The probability of getting into the polar seas is considered under the article *POLE*; and indeed from what has already been advanced must appear very little. Waving this subject therefore at present, we shall return to the remarks made by our navigators during their second voyage.

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wards the
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In this they did little more than confirm what had been observed during the first: for it never was in their power to approach the continent of Asia in any higher latitude than 67° , nor that of America in any part, excepting a few leagues, between 68° and $68^{\circ} 20'$, which they had not seen before. In both years the ice was met with sooner on the Asiatic than the American coast; but in 1779 they met with it in lower latitudes than in 1778. As they proceeded northward, the ice was found universally more compact and solid, though they were ascertained at the same time that the greatest part of what they met with was moveable. Its height on a medium was estimated at eight or ten feet; though some of the highest might be about 16 or 18. The currents were generally at the rate of one mile in the hour, and more generally set from the south-west than from any other quarter. Their force, however, was so inconsiderable, whatever their direction might be, that no conclusion could possibly be drawn from them concerning the existence or non-existence of a northern passage. With regard to the temperature of the weather, July was found much colder than August. In the former, the thermometer was once at 28° , and very frequently at 30° ; whereas during the last year it was very uncommon in August to have it as low as the freezing point. High winds were experienced in both seasons, all of which blew from the south-west. The air was foggy whenever the weather became calm; but the fogs were observed to accompany southerly winds much more than others.

The straits, in the nearest approach of the continents to each other, in the latitude of 66° , are about 13 leagues over; beyond which they diverge to N. E. by E. and W. N. W.; so that in the latitude of 69° , their distance from each other is about 300 miles. A great resemblance is observed betwixt the continents on both sides of the straits. Both are destitute of wood; the shores are low, with mountains further inland, rising to a great height. The soundings in the mid-way between them were from 29 to 30 fathoms, gradually decreasing as either continent was approached; with this difference, however, that the water was somewhat shallower on the coast of America than that of Asia, at an equal distance from land. The bottom, towards the middle, was a soft slimy mud; and near either shore was a brownish sand intermixed with a few shells and small fragments of bones. There was but little tide or current, and what there was came from the west.

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Death of
Captain
Clerke.
See Ch. vi.

Before the ships could reach the peninsula of Kamtschatka, Captain Clerke expired; in consequence of which the command devolved upon Mr King, Captain Gore being now the superior officer. On the return to Kamtschatka, Captain Clerke was buried in the spot on which a church was to be erected; it having been his own desire to be interred in the church.

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Return to
Kamtschat-
ka, with a
description
of the Bay
of Awat-
ska.

By the time they arrived at this peninsula, the face of the country was greatly improved; the fields being covered with the most lively verdure, and every plant in the most flourishing state. The eruption of the volcano which they had observed on their last departure from Kamtschatka, had done little or no damage notwithstanding its violence. Several stones had fallen about the size of a goose's egg, but none larger. At this visit it was observed by our navigators, that the

complexions of the Russians seemed to be much more unhealthy and fallow than when they saw them formerly; and the Russians made the same observation upon the complexions of their guests. As no certain cause for this alteration could be perceived, the blame was by both parties laid on the verdure of the country; which, by contrasting itself with the colour of the people, made the latter appear to disadvantage.

Having repaired as well as they could the damages sustained by the ships among the ice, our navigators now began to proceed on their voyage southward; but the shattered condition of their vessels, with the little time they had now to spare on voyages of discovery, after having been so long at sea, now rendered them much less successful than formerly. Before leaving the peninsula, however, they took care to give such a description of the bay of Awatska as must be of great service to future navigators. This bay lies in $52. 51. N. Lat.$ and $158. 48. E. Long.$ in the bight of another bay formed by Cape Gavareea to the south, and Cheeponskoi Nofs to the north. The latter of these bears from the former N. E. by N. and is 32 leagues distant. From Cape Gavareea to the entrance of Awatska bay the coast takes a northerly direction, and extends about 11 leagues. It consists of a chain of ragged cliffs and rocks, and in many parts presents an appearance of bays or inlets; but on a nearer view, low grounds were perceived by which the headlands were connected. From the entrance of Awatska bay, Cheeponskoi Nofs bears E. N. E. distant 17 leagues. The shore on this side is flat and low, with hills behind gradually rising to a considerable height. The latitude of Cape Gavareea is $52. 21.$ By this remarkable difference of the land on both sides the Cape, navigators may be directed in their course towards it from the southward. When they approach it from the northward, Cheeponskoi Nofs becomes very conspicuous; it being a high projected headland, and united to the continent by a large extent of level ground lower than the Nofs; and presents the same appearance whether viewed from the north or south. Should the weather happen to be sufficiently clear to admit a view of the mountains both on the sea coast and in the neighbourhood, the situation of Awatska bay may be known by the two high ones to the south of it. That nearest the bay is in the form of a sugar loaf, the other flat at top, and not quite so high. Three very conspicuous mountains appear on the north side of the bay; of which that to the west appears to be the highest; the next, being a volcano, is readily known by the smoke which it emits; the third is the most northerly, and might properly be called a cluster of mountains, as it presents several flat tops to view. When got within the capes, the entrance of the bay of Awatska to the north is pointed out by a lighthouse on a perpendicular headland. Many sunken rocks lie to the eastward of this headland, stretching two or three miles into the sea; and which with a moderate sea or swell will always show themselves. A small round island lies four miles to the south of the entrance, principally composed of high pointed rocks; one of which is very remarkable. The entrance into the bay is at first about three miles wide, and one and an half in the narrowest part; the length is four miles in a north-west direction. Within the mouth is a noble

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the voyage
from the
time of leav-
ing Kamt-
schatka.

noble basin about 25 miles in circumference; in which are the harbours of Rakoweera to the east, Tarcinska to the west, and St Peter and St Paul to the north.

On leaving Kamtschatka, it was unanimously judged improper to make any attempt to navigate the seas between the continent of Asia and Japan. Instead of this, it was proposed to steer to the eastward of that island, and in the way thither to sail along the Kuriles; examining particularly those that are situated nearest to the northern coast of Japan, which are said to be considerable, and neither subject to the Russians nor Japanese. In case they should have the good fortune to meet with some secure and commodious harbours in any of these islands, it was supposed that they might prove of considerable importance, as convenient places for shelter for subsequent navigators, who might be employed in exploring the seas as the means of producing a commercial intercourse among the adjacent dominions of the two above mentioned empires. The next object was to take a survey of the coasts of the islands of Japan; after which they designed to sail for the coast of China as far north as possible, and then sail along it southward to Macao.

In pursuance of this plan, they sailed along the coast of Kamtschatka, till they came to the southern point called *Cape Lopatka*, whose situation they determined to be in Lat. 51. 0. E. Long. 156. 45. To the north-west they observed a very lofty mountain whose summit was lost in the clouds; and the same instant the first of the Kurile islands, named *Shoonyska*, made its appearance in the direction of west, half south. The passage betwixt the southern extremity of Cape Lopatka and the island of Shoonyska, though only one league in breadth, is extremely dangerous, both on account of the rapidity of the tides, and of the sunk rocks which lie off the Cape. In the course of this voyage, they had occasion to observe, that a violent swell from the north-east frequently took place, tho' the wind had been for some time in the western quarter; a circumstance for which they seem to have been altogether unable to account.

The tempestuous weather which now occurred, prevented any discoveries from being made among the Kurile Isles; however, they again sailed over the space assigned to the land of De Gama, without being able to find it; and from comparing several accounts of the Russian navigators with one another, it was judged extremely probable, that the land of Jeso so frequently laid down in former maps, is no other than the most southerly of the Kurile isles. On coming in view of the coast of Japan, they had the mortification to find that they could not approach the land by reason of the tempestuous weather and bad state of the ships; the coasts of these islands being extremely dangerous. Passing from thence in quest of the Bashee Islands, they found amazing quantities of pumice-stone floating in the sea; so that they seemed inclined to believe, with Mr Muller, that if there had formerly been any part of the continent, or large island, called the *Land of Jeso*, it must have disappeared in a volcanic convulsion; which also must have been the case with that called the *Company's Land* and *Staten Island*. Though they had not the good fortune to find the Bashee Islands, they discovered one in 24. 48. N. Lat. 141. 20. E. Long. which from its appearance, and the sulphureous smell

emitted by it, they named *Sulphur Island*. After this nothing remarkable occurred till their arrival at Canton in China, where having staid for some time in order to put their ships in repair, they at last set sail for Britain; but through stress of weather were driven as far north as Stromness in Orkney. From thence Captain Gore sent a dispatch to the Lords of the Admiralty to inform them of his arrival; and on the 4th of October 1780 the ships reached the Nore, after an absence of 4 years, 2 months and 22 days.

COOKERY, the art of preparing and dressing victuals for the table. An art, in its simplest and ordinary modes, sufficiently familiar to every house-keeper; and, in its luxurious refinements, too copiously detailed in manuals and directories published for the purpose to require any enlargement here, were it even a topic that at all deserved consideration in a work of this nature.

COOLERS, in medicine, those remedies which produce an immediate sense of cold, being such as have their parts in less motion than those of the organs of feeling; as fruits and all acid liquors. Or they are such as, by a particular visciduity or grossness of parts, give the animal fluids a greater consistency than they had before, and consequently retard their motion, having less of that intestine force on which their heat depends: of this sort are cucumbers and all substances producing visciduity.

COOM, a term applied to the soot that gathers over an oven's mouth; also for that black, greasy substance, which works out of the wheels of carriages.

COOMB, or **COMB**, of *Corn*, a dry measure containing 4 bushels, or half a quarter.

COOP, in husbandry, a tumbrel or cart enclosed with boards, and used to carry dung, grains, &c.

COOP is also the name of a pen, or enclosed place, where lambs, poultry, &c. are shut up in order to be fed.

COOPER, a tradesman who makes casks, tubs, and barrels, for holding liquors or other commodities. Every custom-house and excise-office has an officer called *King's-cooper*; and every ship of burden has a cooper on board.

COOPER (Anthony-Ashley), first earl of Shaftesbury, a most able statesman, was the son of Sir John Cooper, Bart. of Rockburn in Hampshire, and was born in 1621. He was elected member for Tewkesbury, at 19 years of age, in the short parliament that met April 13. 1640. He seems to have been well affected to the king's service at the beginning of the civil wars; for he repaired to the king at Oxford with offers of assistance: but prince Maurice breaking articles to a town in Dorsetshire that he had got to receive him, furnished him with a pretence for going over to the parliament, from which he accepted a commission. When Richard Cromwell was deposed, and the Rump came again into power, they nominated Sir Anthony one of their council of state, and a commissioner for managing the army. At that very time he had engaged in a secret correspondence for restoring Charles II. and, upon the king's coming over, was sworn of his privy council. He was one of the commissioners for the trial of the regicides; was soon after made chancellor of the Exchequer, then a commissioner of the treasury; in 1672 was created earl of Shaftesbury; and soon after was raised to the post of lord chancellor.

Cookery
||
Cooper

Cooper. *lor.* He filled this office with great ability and integrity; and though the short time he was at the helm was in a tempestuous season, it is doing him justice to say, nothing could either distract or affright him. The great seal was taken from him in 1673, 12 months after his receiving it; but, though out of office, he still made a distinguished figure in parliament, for it was not in his nature to remain inactive. He drew upon himself the implacable hatred of the Duke of York, by steadily promoting, if not originally inventing, the famous project of an exclusion-bill. When his enemies came into power, he found it necessary to consult his safety, by retiring into Holland, where he died six weeks after his arrival, in 1683. While his great abilities are confessed by all, it has been his misfortune to have his history recorded by his enemies, who studied to render him odious. Butler has given a very severe character of him in his *Hudibras*.

COOPER (Anthony Ashley), earl of Shaftesbury, was son of Anthony earl of Shaftesbury, and grandson of Anthony first earl of Shaftesbury, lord high chancellor of England. He was born in 1671, at Exeter-house in London, where his grandfather lived, who from the time of his birth conceived so great an affection for him, that he undertook the care of his education; and he made so good a progress in learning, that he could read with ease both the Latin and Greek languages when only 11 years old. In 1683, his father carried him to the school at Winchester, where he was often insulted on his grandfather's account, whose memory was odious to the zealots for despotic power: he therefore prevailed with his father to consent to his desire of going abroad. After three years stay abroad, he returned to England in 1689, and was offered a seat in parliament in some of those boroughs where his family had an interest. But this offer he did not now accept, that he might not be interrupted in the course of his studies, which he prosecuted five years more with great vigour and success; till, on Sir John Trenchard's death, he was elected burgess for Pool. Soon after his coming into parliament, he had an opportunity given him of expressing that spirit of liberty by which he uniformly directed his conduct on all occasions. It was the bringing in and promoting "the act for regulating trials in cases of high treason." But the fatigues of attending the House of Commons in a few years so impaired his health, that he was obliged to decline coming again into parliament after the dissolution in 1698. He then went to Holland, where the conversation of Mr. Bayle, Mr. le Clerc, and several other learned and ingenious men, induced him to reside a twelvemonth. During this time there was printed at London, in 8vo. an imperfect edition of lord Ashley's *Inquiry concerning Virtue*. It had been surreptitiously taken from a rough draught, sketched when he was no more than 20 years of age. His lordship, who was greatly chagrined at this event, immediately bought up the impression before many books were sold, and set about completing the treatise, as it afterwards appeared in the second volume of the *Characteristicks*. Soon after lord Ashley's return to England, he became, by the decease of his father, earl of Shaftesbury. But his own private affairs hindered him from attending the House of Lords till the second year of his peerage, when he was very earnest

to support king William's measures, who was at that time projecting the grand alliance. So much was he in favour with king William, that he had the offer of secretary of state; but his declining constitution would not allow him to accept it. Though he was disabled from engaging in business, the king consulted him on matters of very high importance; and it is pretty well known that he had the greatest share in composing that celebrated last speech of king William, December 31. 1701. On Queen Anne's accession to the throne, he returned to his retired manner of life, being no longer advised with concerning the public; and was then removed from the vice-admiralty of Dorset, which had been in the family for three generations. In 1703, he made a second journey to Holland, and returned to England the year following. The French prophets, soon after this, having by their enthusiastic extravagancies made a great noise throughout the nation, and, among different opinions, some advising a prosecution, the lord Shaftesbury apprehended that such measures tended rather to inflame than to cure the disease. This was the origin of his *Letter concerning Enthusiasm*, which he sent to lord Somers, then president of the council; and which, being approved of by that nobleman and other gentlemen to whom it was shown, was published in 1708, tho' without the name of the author, or that of the person to whom it was addressed. His *Moralist*, a philosophical Rhapsody, being a recital of certain conversations on natural and moral subjects, appeared in Jan. 1709; and in the May following his *Sensus Communis*, an essay upon the freedom of Wit and Humour, in a Letter to a Friend. It was in the same year that he entered into the marriage state with Mrs Jane Ewer, the youngest daughter of Thomas Ewer, Esq; of Lee in Hertfordshire. By this lady, to whom his lordship was related, he had an only son, Anthony the late Earl of Shaftesbury. In 1710, his *Soliloquy, or Advice to an Author*, was published at London in 8vo. While he was thus employing himself in literary composition, his health declined so fast, that it was recommended to him to seek assistance from a warmer climate. Accordingly, in July 1711, he set out for Naples, and pursuing his journey by way of France, was obliged to pass through the Duke of Berwick's army, which at that time lay encamped near the borders of Piedmont. Here he was entertained by that famous general in the most friendly manner, and every assistance was given him to conduct him in safety to the Duke of Savoy's dominions. Our noble author's removal to Italy was of no service to the re-establishment of his health; for after having resided at Naples about a year and a half, he departed this life on the 4th of February, O. S. 1712-13, in the 42d year of his age. The only pieces which he finished after he came to this city, were the *Judgment of Hercules*, and the *Letter concerning Design*, which last was added to that impression of the *Characteristicks* which appeared in 1732. It was in 1711 that the first edition was published of all the *Characteristicks* together, and in the order in which they now stand. But this publication not being entirely to his lordship's satisfaction, he chiefly employed the latter part of his life in preparing his writings for a more elegant edition; which was given to the world in 1713, soon after his decease. The several prints that were then first

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Cooper. *interpersed through the volumes were all invented by himself, and designed under his immediate inspection; and for this purpose he was at the pains of drawing up a most accurate set of instructions, the manuscript of which is still preserved in the family. That no mistakes might be committed, the Earl did not leave to any other hands so much as the drudgery of correcting the press. In the three volumes of the Characteristics of Men, Manners, Opinions, and Times, he completed the whole of his works which he intended for the public eye. Not long before his death he had formed a scheme of writing a discourse on painting, sculpture, and the other arts of design, which, if he had lived to have finished it, might have proved a very pleasing and useful work, as he had a fine taste in subjects of that kind: but his premature decease prevented his making any great progress in the undertaking. The Earl of Shaftesbury had an esteem for the works of the best English divines; one remarkable instance of which was displayed in his writing a Preface to a volume of Dr. Whichcot's Sermons, published in 1698. Copies of these sermons had been taken in short-hand, as they were delivered from the pulpit; and the Earl had so high an opinion of them that he not only introduced them to the world by his preface, but had them printed under his own particular inspection. In his Letters to a Young Man at the University, he speaks of Bishop Burnet and Dr Hoadly in terms of great applause, and has done justice to the merits of Tillotson, Barrow, Chillingworth, and Hammond, as the chief pillars of the church against fanaticism. But whatever regard his lordship might have for some of our divines, it was to the writings of antiquity that his admiration was principally directed. These were the constant objects of his study, and from them he formed his system of philosophy, which was of the civil, social, and theistic kind.*

Of Lord Shaftesbury's character, as a writer, different representations have been given. As one of his greatest admirers, may be mentioned Lord Monboddo; who, speaking of his Rhapsodist in particular, does not hesitate to pronounce it not only the best dialogue in English, out of all degree of comparison, but the sublimest philosophy; and, if we will join with it the Inquiry, the completest system both of morality and theology that we have in our language, and, at the same time, of the greatest beauty and elegance for the style and composition.

Even several of the authors who have distinguished themselves by their direct opposition to many of the sentiments which occur in the Characteristics, have nevertheless mixed no small degree of applause with their censures. "I have again pursued, with fresh pleasure and fresh concern (says Mr Balguy, in his Letter to a Deist), the volumes of Characteristics—I heartily wish the noble author had been as unprejudiced in writing as I was in reading. If he had, I am persuaded his readers would have found double pleasure and double instruction. It seems to me, that his lordship had little or no temptation to pursue any singularities of opinion by ways of distinction. His fine genius would sufficiently have distinguished him from vulgar authors in the high road of truth and sense; on which account his deviations seem the more to be lamented. The purity and politeness of his style, and the delicacy of his sentiments,

are and must be acknowledged by all readers of taste and sincerity. But nevertheless, as his beauties are not easy to be overlooked, so neither are his blemishes. His works appear to be stained with so many gross errors, and his fine thoughts are so often mingled with absurdities, that however we may be charmed with the one, we are forced to condemn the other." Mr Balguy hath farther observed, with regard to the Inquiry concerning Virtue, which is the immediate object of his animadversion, that though he cannot agree in every particular contained in it, he finds little more to do than to tell how much he admires; and that he thinks it indeed, in the main, a performance so just and exact as to deserve higher praises than he is able to give it.

Dr Brown, in his essay, on the Characteristics, observes, that the Earl of Shaftesbury hath in that performance mingled beauties and blots, faults and excellencies, with a liberal and unsparing hand. At the same time, the Doctor applauds that generous spirit of freedom which shines throughout the whole. Another direct antagonist of the Earl of Shaftesbury, Dr. Leland, has observed, that no impartial man will deny him the praise of a fine genius. "The quality of the writer (continues the Doctor), his lively and beautiful imagination, the delicacy of taste he hath shown in many instances, and the graces and embellishments of his style, though perhaps sometimes too affected, have procured him many admirers. To which may be added his refined sentiments on the beauty and excellency of virtue, and that he hath often spoken honourably of a just and good Providence, which ministers and governs the whole in the best manner; and hath strongly asserted, in opposition to Mr Hobbes, the natural difference between good and evil; and that man was originally formed for society, and the exercise of mutual kindness and benevolence; and not only so, but for religion and piety too. These things have very much prejudiced many persons in his favour, and prepared them for receiving, almost implicitly, whatever he hath advanced." Dr. Johnson, as we are informed by Sir John Hawkins, bore no good-will to Lord Shaftesbury; neither did he seem at all to relish the cant of the Shaftesburian school, nor inclined to admit the pretensions of those who professed it, to tastes and perceptions which are not common to all men; a taste in morals, in poetry and prose writing, in painting, in sculpture, in music, in architecture, and in government! A taste that censured every production, and induced them to reprobate every effort of genius that fell short of their own capricious standard."

The grand point in which our noble author has rendered himself justly obnoxious to the friends of religion, is his having interspersed through the Characteristics a number of insinuations that appear to be unfavourable to the cause of revelation. There have not, however been wanting many among his admirers, who have thought that he ought not to be reckoned among the deistical writers. The author of animadversions upon Dr Brown's three Essays on the Characteristics, observes, that it is "imprudent, to say no worse, in some sincere advocates for Christianity, to reject the friendly advice and assistance of so masterly a writer as the Lord Shaftesbury, and to give him up to the deists as a patron of infidelity." But it is matter of fact, and not considerations of prudence or imprudence, that

must

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Cooper. must determine the question. In support of his Lordship's having been a believer in our holy religion, may be alleged, his Preface to Whichcot's Sermons, and his Letters to a Student at the University: in both which works he constantly expresses himself in such language as seems to indicate that he was really a Christian. And with regard to the Letters it may be remarked, that they were written in 1707, 1708, and 1709, not many years before his lordship's death. Nevertheless, there are in the *Characteristicks* so many sceptical passages, that he must be considered as having been a doubter at least, if not an absolute disbeliever with respect to revelation. But if he must be ranked amongst the deists, we agree with the observation of one of his biographers, that he is a very different deist from numbers who have appeared in that character; his general principles being much less exceptionable.

The style of Lord Shaftesbury's compositions is also a point upon which various and contradictory sentiments have been entertained. But for the fullest and most judicious criticism that has appeared upon that subject, we may refer the reader to Dr Blair's Lectures on Rhetoric and Belles Lettres, Vol. I. p. 192, 193, 207, 208, 234, 263, and 396—398.

COOPER (Samuel), a very eminent English miniature painter, born in 1609, and bred under the care of his uncle John Hoskins. He derived, however, his principal excellence from a study of the works of Van Dyck, in whose time he lived; inasmuch that he was commonly styled "Van Dyck in little." His pencil was chiefly confined to the head, in which, with all its dependences, especially the hair, he was inimitable; but if he descended lower, his incorrectness was notorious. He died in 1672; and his pieces are universally admired all over Europe, selling for intredible prices—He had a brother, Alexander, likewise a good miniature painter, who became limner to Christiana queen of Sweden.

COOPER (Thomas), a pious and learned prelate in the reign of queen Elizabeth, was born at Oxford about the year 1517. He was educated in the school adjoining to Magdalene college, of which he was a choirister, where also, in 1539, he was elected probationer, and fellow in the following year. About the year 1546, quitting his fellowship, he applied himself to the study of physic, in 1556 took the degree of bachelor in that faculty, and practised as physician at Oxford. Being inclined to the Protestant religion, probably this was only a prudent suspension of his final intentions during the popish reign of queen Mary: for, on the accession of Elizabeth, he resumed the study of divinity; became a celebrated preacher, was made dean of Christchurch, and vice chancellor of the university, having accumulated the degrees of bachelor and doctor in divinity. In 1569 he was made dean of Gloucester; and, the year following, bishop of Lincoln: whence, in 1584, he was translated to the see of Winchester; in which city he died on the 29th of April 1594, and was buried in the cathedral there, on the south side of the choir. The several writers who have mentioned Dr Cooper, unanimously give him the character of an eloquent preacher, a learned divine, and a good man. He had the misfortune, while at Oxford, to marry a lady whose gallantries became notorious: nevertheless he would not be divorced from her; knowing that he

could not live without a wife, he did not choose "to charge his conscience with the scandal of a second marriage."—He wrote, 1. *The Epitome of Chronicles* from the 17th year after Christ to 1540, and thence after to 1560. 2. *Thesaurus linguæ Romanæ et Britannicæ*. This dictionary, which is an improvement upon Elyot's, was much admired by queen Elizabeth, who thence forward determined to promote the author. 3. A brief exposition of such chapters of the Old Testament as usually are read in the church, at common prayer, on Sundays throughout the year. 4. An admonition to the people of England. 5. Sermons.

COOPER (John-Gilbert), a polite writer of the present age, was born in 1723; and was descended from an ancient family in the county of Nottingham, whose fortune was injured in the last century by their attachment to the principles of monarchy. He resided at Thurgarton priory in Nottinghamshire, which was granted by King Henry VIII. to William Cooper, one of his ancestors. This mansion Mr Cooper inherited from his father, who in 1639 was high sheriff of the county; and transmitted it to his son, who filled the same respectable office in 1783. After passing through Westminster school under Dr John Nicoll, along with the late Lord Albemarle, Lord Buckinghamshire, Major Johnson, Mr George Asliby, and many other eminent and ingenious men, he became in 1743, a Fellow-Commoner of Trinity-college, Cambridge, and resided there two or three years; but quitted the university on his marriage with Susanna the daughter of William Wrighte, Esq. son to the Lord Keeper of that name, and Recorder of Leicester 1729—1763. In the year 1745 he commenced author by the publication of *The Power of Harmony*, a poem in 4to; and in 1746 and 1757 he produced several Essays and Poems under the signature of Philalethes, in a periodical work called *The Museum*, published by Mr Doddsley. In the same year he came forward as an author, with his name, by a work which received much assistance from his friend the Reverend John Jackson of Leicester, who communicated several learned notes, in which he contrived to manifest his dislike to his formidable antagonist Mr Warburton. It was intituled *The Life of Socrates*, collected from the *Memorabilia* of Xenophon, and the *Dialogues* of Plato, and illustrated farther by Aristotle, Diodorus Siculus, Cicero, Proclus, Apuleius, Maximus Tyrius, Boethius, Diogenes Laertius, Aulus Gellius, and others, 1749, 8vo. In this work Mr Cooper gave evident marks of superior genius; warm, impetuous and impatient of restraint. In 1754, Mr. Cooper published his *Letters on Taste*, 8vo; an elegant little volume, on which no small share of his reputation is founded; and in 1755, *The Tomb of Shakespeare*, a Vision, 4to; a decent performance, but in which there is more of wit and application than of nature or genius. In 1756 he assisted Mr Moore, by writing some numbers of *The World*; and attempted to rouse the indignation of his countrymen against the Hessians, at that juncture brought over to defend the nation, in a Poem called *The Genius of Britain*, addressed to Mr. Pitt. In 1758, he published *Epistles to the Great*, from Aristippus in Retirement, 4to; and *The Call of Aristippus*, Epistle IV. to Mark Akenfide, M. D. Also, *A Father's Advice to his Son*, in 4to.

In

Co ordi-
nate
Copaiba.

In the Annual Register of the same year is his Translation of an Epistle from the King of Prussia to Monsieur Voltaire. In 1759, he published *Ver Vert*; or, the Nunnery Parrot; an Heroic Poem, in four cantos, inscribed to the Abbess of D***; translated from the French of Monsieur Gresset, 4to; reprinted in the first volume of Dilly's Repository, 1777; and, in 1764, Poems on several subjects, by the Author of the Life of Socrates; with a prefatory Advertisement by Mr Doddsley. In this little volume were included all the separate poetical pieces which have been already mentioned, excepting *Ver Vert*, which is a sprightly composition. Mr. Cooper died at his father's house in May Fair, after a long and excruciating illness arising from the stone, April 14. 1769.

CO-ORDINATE, something of equal order, rank, or degree with another.

COOT, in ornithology. See *FULICA*.

COOTWICH (John), doctor of laws, was born at Utrecht, and spent great part of his life in travelling. He published in Latin, in 1619, an account of his journey from Jerusalem and from Syria; which is very scarce and in high esteem. Time of his death uncertain.

COPAIBA, or *Balsam of COPAIBA*, a liquid resinous juice, flowing from incisions made in the trunk of the *copaifera* balsamum. See the following article. This juice is clear and transparent, of a whitish or pale yellowish colour, an agreeable smell, and a bitterish pungent taste. It is usually about the consistence of oil, or a little thicker: when long kept, it becomes nearly as thick as honey, retaining its clearness; but has not been observed to grow dry or solid, as most of the other resinous juices do. We sometimes meet with a thick sort of balsam of copaiba, which is not at all transparent, or much less so than the foregoing, and generally has a portion of turbid watery liquor at the bottom. This sort is probably either adulterated by the mixture of other substances, or has been extracted by coction from the bark and branches of the tree: its smell and taste are much less pleasant than those of the genuine balsam. Pure balsam of copaiba dissolves entirely in rectified spirit, especially if the menstruum be previously alkalinized: the solution has a very fragrant smell. Distilled with water, it yields a large quantity of a limpid essential oil; and in a strong heat, without addition, a blue oil.

The balsam of copaiba is an useful corroborating detergent medicine, accompanied with a degree of irritation. It strengthens the nervous system, tends to loosen the belly, in large doses proves purgative, promotes urine, and cleanses and heals exulcerations in the urinary passages, which it is supposed to perform more effectually than any of the other balsams. Fuller observes, that it gives the urine an intensely bitter taste, but not a violet smell as the turpentine does.

This balsam has been principally celebrated in gleet and the fluor albus, and externally as a vulnerary. The author above mentioned recommends it likewise in dysenteries, in scorbutic cachexies, in diseases of the breast and lungs, and in an acrimonious or putrescent state of the juices: he says, he has known very dangerous coughs, which manifestly threatened a consumption, cured by the use of this balsam alone; and that notwithstanding its being hot and bitter, it has good

effects even in hectic cases. Most physicians seem now, however, to consider balsams and resins too stimulant to be ventured on in phthisical affections.

The dose of this medicine rarely exceeds 20 or 30 drops, though some direct 60 or more. It may be conveniently taken in the form of an electuaccharum, or in that of an emulsion, into which it may be reduced by triturating it with almonds, or rather with a thick mucilage of gum-arabic, till they are well incorporated, and then gradually adding a proper quantity of water.

COPAIFERA, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under those of which the order is doubtful. There is no calyx; there are four petals; the legumen ovate; one seed with an arillus or coat resembling a berry. We know but of one species, the balsamum, being that which yields the copaiba balsam mentioned in the preceding article. This tree grows near a village called *Ayapel*, in the province of Antiochi, in the Spanish West Indies, about ten days journey from Carthage. There are great numbers of these trees in the woods about this village, which grow to the height of 50 or 60 feet. Some of these trees do not yield any of the balsam; those which do, are distinguished by a ridge which runs along their trunks. These trees are wounded in the centre, and they place calabash shells, or some other vessels, to the wounded part to receive the balsam, which will all flow out in a short time. One of these trees will yield five or six gallons of balsam: but tho' they will thrive well after being tapped, yet they never afford any more balsam.

COPAL, improperly called *gum copal*, is a gum of the resinous kind brought from New Spain, being the concrete juice of a tree* which grows in these parts. * *Rhus Copallinum*. It comes to us in irregular masses, some of which are transparent, and of different shades as to colour, from a light yellow to a deep brown. Some pieces are whitish and semitransparent. To the smell it is more agreeable than frankincense; but hath neither the solubility in water common to gums, nor in spirit of wine common to resins, at least in any considerable degree. By these properties it resembles amber; which has induced some to think it a mineral bitumen resembling that substance. In distillation it yields an oil, which like mineral petrolea is indissoluble in spirit of wine. Copal itself is soluble in the essential oils, particularly in that of lavender, but not easily in the expressed ones. It may, however, be dissolved in linseed oil by digestion, with a heat very little less than is sufficient to boil or decompose the oil. This solution, diluted with spirit of turpentine, forms a beautiful transparent varnish, which, when properly applied, and slowly dried, is very hard and durable. This varnish is applied to snuff-boxes, tea-boards and other utensils. It preserves and gives lustre to paintings, and greatly restores the decayed colours of old pictures, by filling up the cracks and rendering the surfaces capable of reflecting light more uniformly.

COPARCENARY, the share or quota of a coparcener,

COPARCENERS, (from *con* and *particeps*, "partner;"), or *PARCENERS*; such as have equal portions in the inheritance of their ancestor.

Co-

Copaifera
Coparceners.

Cope
Copenha-
gen.

Coparceners are so either by law or custom. Coparceners by law, are the issue female; which, in default of a male heir, come equally to the lands of their ancestor. Coparceners by custom, are those who, by some peculiar custom of the country, challenge equal parts in such lands; as in Kent, by the custom of gavelkind. The crown of England is not subject to coparcenary.

COPE, an ecclesiastical ornament, usually worn by chanters and subchanters, when they officiate in solemnity. It reaches from the shoulders to the feet. The ancients called it *pluviale*.—The word is also used for the roof or covering of a house, &c.

COPE is also the name of an ancient custom or tribute due to the king or lord of the soil, out of the lead-mines in some part of Derbyshire; of which Manlove saith thus:

Egrefs and regrefs to the king's highway,
The miners have; and *lot* and *cope* they pay:
The thirteenth dish of ore within their mine,
To the lord, for *lot*, they pay at measuring time:
Sixpence a load for *cope* the lord demands,
And that is paid to the *burghmaster's* hands.

This word by doomday-book, as Mr Hagar hath interpreted it, signifies a hill; and *cope* is taken for the supreme cover, as the *cope of heaven*.

COPEL. See CUPEL.

COPENHAGEN, the capital of the kingdom of Denmark, situated on the eastern shore of the island of Zealand, upon a fine bay of the Baltic sea, not far from the strait called the *Sound*. E. Long. 13. 0. N. Lat. 55. 30.

The precise date of the foundation of this city is disputed; but the most probable account is, that it took its rise from a castle built on the spot in the year 1168, as a protection against the pirates which at that time swarmed in the Baltic. The conveniency of the situation, and the security afforded by the castle, soon induced a number of the inhabitants of Zealand to resort thither; but it was not distinguished by the royal residence until 1443, during the reign of Christopher of Bavaria; since which period it has been gradually enlarged and beautified, and is become the capital of Denmark.

Copenhagen is the best built city of the north; for although Petersburg excels it in superb edifices, yet as it contains no wooden houses, it does not display that striking contrast of meanness and magnificence, but in general exhibits a more equable and uniform appearance. The town is surrounded towards the land with regular ramparts and bastions, a broad ditch full of water, and a few outworks: its circumference measures between four and five miles. The streets are well paved, with a footway on each side, but too narrow and inconvenient for general use. The greatest part of the buildings are of brick; and a few are of free-stone brought from Germany. The houses of the nobility are in general splendid, and constructed in the Italian style of architecture: the palace, which was erected by Christian VI. is a large pile of building; the front is of stone, and the wings of brick stuccoed; the suite of apartments is princely; but the external appearance is more grand than elegant.

The busy spirit of commerce is visible in this city, which contains about 80,000 inhabitants. The haven is always crowded with merchant ships; and the streets are intersected by broad canals, which bring the mer-

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chandize close to the warehouses that line the quays. This city owes its principal beauty to a dreadful fire in 1728, that destroyed 5 churches and 67 streets, which have been since rebuilt in the modern style. The new part of the town, raised by the late king Frederic V. is extremely beautiful, scarcely inferior to Bath. It consists of an octagon, containing four uniform and elegant buildings of hewn stone, and of four broad streets leading to it in opposite directions. In the middle of the area stands an equestrian statue of Frederic V. in bronze, as big as life, which cost 80,000*l*. The Royal Museum, or Cabinet of Rarities, merits the attention of travellers. This collection, which was begun by Frederic III. is deposited in eight apartments, and ranged in the following order: animals, shells, minerals, paintings, antiquities, medals, dresses, arms and implements of the Laplanders.

Part of Copenhagen, which is called *Christiansbafen*, is built upon the Isle of Amak, which generally attracts the curiosity of foreigners; (see AMAK). From this place, to which the main city is joined by a bridge, the markets are supplied with fowl, beef, mutton, venison, corn, and culinary vegetables, which are produced here in the greatest abundance.

COPERNICAN, in general, something belonging to COPERNICUS. Hence,

COPERNICAN *System* or *Hypothesis*, that system of the world, wherein the sun is supposed to rest in the centre, and the planets, with the earth, to move in ellipses round him. See COPERNICUS.

COPERNICUS (Nicolaus), an eminent astronomer, was born at Thorn in Prussia, Jan. 10. 1472. He was taught the Latin and Greek languages at home; and afterwards sent to Cracovia, where he studied philosophy and physic. His genius in the mean time was naturally turned to mathematics, which he pursued through all its various branches. He set out for Italy when he was 23 years of age; but staid at Bologna some time, for the sake of being with the celebrated astronomer of that place, Dominicus Maria: whose conversation, however, and company, he affected, not so much as a learner, as an assistant to him in making his observations. From thence he passed to Rome, where he was no sooner arrived than he was considered as not inferior to the famous Regiomontanus; and acquired, in short so great a reputation, that he was chosen professor of mathematics, which he taught for a long time with great applause. He also made some astronomical observations there about the year 1500. Returning to his own country some years after, he began to apply his vast knowledge in mathematics to correct the system of astronomy which then prevailed. He set himself to collect all the books which had been written by philosophers and astronomers, and to examine all the various hypotheses they had invented for the solution of the celestial phenomena; to try if a more symmetrical order and constitution of the parts of the world could not be discovered, and a more just and exquisite harmony in its motions established, than what the astronomers of those times so easily admitted. But of all their hypotheses none pleased him so well as the Pythagorean, which made the sun to be the centre of the system, and supposed the earth to move not only round the sun, but round its own axis also. He thought he discerned much beautiful

Coperni-
can.
Coperni-
cus.

Copernicus beautiful order and proportion in this; and that all that embarrassment and perplexity from epicycles and excentrics, which attended the Ptolemaic hypotheses, would here be entirely removed.

This system, then, he began to consider, and to write upon, when he was about 35 years of age. He employed himself in contemplating the phenomena carefully; in making mathematical calculations; in examining the observations of the ancients, and in making new ones of his own; and after more than 20 years chiefly spent in this manner, he brought his scheme to perfection, and established that system of the world which goes by his name, and is now universally received, (see ASTRONOMY, n° 22.) His system, however, was then looked upon as a most dangerous heresy: for which he was thrown into prison by Pope Urban VIII. and not suffered to come out till he had recanted his opinion; that is, till he had renounced the testimony of his senses. He died the 24th of May 1543, in the 70th year of his age.

This extraordinary man had been made canon of Worms by his mother's brother, Lucas Wazelrodus, who was bishop of that place. He was not only the greatest of astronomers, but a perfect master of the Greek and Latin tongues; to all which he joined the greatest piety and innocence of manners.

COPERNICUS, the name of an astronomical instrument, invented by Mr. Whiston, to exhibit the motion and phenomena of the planets, both primary and secondary. It is built upon the Copernican system, and for that reason called by his name.

COPHTI, COPHTS, or COPTI, a name given to the Christians of Egypt, who are of the sect of Jacobites.

The critics are extremely divided about the origin and orthography of the word; some write it Cophti, others Cophtites, Cophtitz, Copts, &c. Scaliger derives the name from Coptos, an anciently celebrated town of Egypt, the metropolis of the Thebaid. Kircher refutes this opinion, and maintains, that the word originally signifies "cut" and "circumscribed;" and was given these people by the Mahometans, by way of reproach, because of their practice of circumcising: but P. Sollier, another Jesuit, refutes this opinion. Scaliger afterwards changed his opinion, and derived the word from *Aegyptus*, the ancient name of Egypt, by retrenching the first syllable: but this opinion, too, P. Sollier disputes. John de Leo and others say, that the Egyptians anciently called their country *Elchibith*, or *Cibth*, from Cibth their first king, whence Cophtite, &c. others say from Cobtim second king of Egypt. Vansleb derives the word Copht from Copt, son of Misraim, grandson of Noah. All these etymologies P. Sollier rejects, on this principle, that were they true, the Egyptians ought all equally to be called *Cophti*; whereas, in effect, none but the Christians, and among those none but the Jacobites bear the name, the Melchites not being comprehended under it. Hence he chooses to derive the word from the name *Jacobite*, retrenching the first syllable; whence, Cobite, Cobea, Copta, and Cophta.

The Copts have a patriarch who resides at Cairo, but he takes his title from Alexandria: he has no archbishop under him, but 11 or 12 bishops. The rest of the clergy, whether secular or regular, is com-

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posed of the orders of St Antony, St Paul, and St Macarius, who have each their monasteries. Besides the orders of priests, deacons, and subdeacons, the Cophts have likewise archimandrites, the dignity whereof they confer with all the prayers and ceremonies of a strict ordination. This makes a considerable difference among the priests; and besides the rank and authority it gives them with regard to the religious, it comprehends the degree and functions of archpriests. By a custom of 600 years standing, if a priest elected bishop be not already archimandrite, that dignity must be conferred on him before episcopal ordination. The second person among the clergy, after the patriarch, is the titular patriarch of Jerusalem who also resides at Cairo, because of the few Cophts at Jerusalem; he is, in effect, little more than the bishop of Cairo: only he goes to Jerusalem every Easter, and visits some other places in Palestine near Egypt, which own his jurisdiction. To him belongs the government of the Cophtic church, during the vacancy of the patriarchal see.

To be elected patriarch, it is necessary the person have lived all his life in continence: it is he confers the bishoprics. To be elected bishop, the person must be in the celibate; or, if he has been married, it must not be above once. The priests and inferior ministers are allowed to be married before ordination; but are not obliged to it, as Ludolphus erroneously observes. They have a great number of deacons, and even confer the dignity frequently on children. None but the lowest rank among the people commence ecclesiastics; whence arises that excessive ignorance found among them; yet the respect of the laity towards the clergy is very extraordinary. Their office is longer than the Roman office, and never changes in any thing: they have three liturgies, which they vary occasionally.

The monastic life is in great esteem among the Cophts: to be admitted into it, there is always required the consent of the bishop. The religious Cophts make a vow of perpetual chastity; renounce the world, and live with great austerity in deserts: they are obliged to sleep in their clothes and their girdle, on a mat stretched on the ground; and to prostrate themselves every evening 150 times, with their face and breast on the ground. They are all, both men and women, of the lowest class of the people; and live on alms. The nunneries are properly hospitals; and few enter but widows reduced to beggary.

F. Roderic reduces the errors and opinions of the Cophts to the following heads: 1. That they put away their wives, and espouse others while the first are living. 2. That they have seven sacraments, viz. baptism, the eucharist, confirmation, ordination, faith, fasting, and prayer. 3. That they deny the Holy Spirit to proceed from the Son. 4. That they only allow of three œcumenical councils; that of Nice, Constantinople, and Ephesus. 5. That they only allow of one nature, will, and operation, in Jesus Christ, after the union of the humanity with the divinity. For their errors in discipline, they may be reduced, 1. To the practice of circumcising their children before baptism, which has obtained among them from the 12th century. 2. To their ordaining deacons at five years of age.

3 I

3. To

Cophiti
Cophitic.

3. To their allowing of marriage in the second degree.
4. To their forbearing to eat blood: to which some add their belief of a baptism by fire, which they confer by applying a hot iron to their forehead or cheeks. —Others palliate these errors, and shew that many of them are rather abuses of particular persons than doctrines of the sect. This seems to be the case with regard to their polygamy, eating of blood, marrying in the second degree, and the baptism of fire; for circumcision, it is not practised as a ceremony of religion, nor as of any divine appointment, but merely as a custom which they derive from the Ishmaelites; and which, perhaps, may have had its origin from a view to health and decency in those hot countries.

The Cophts, at different times, have made several reunions with the Latins; but always in appearance only, and under some necessity to their affairs. In the time of Pope Paul IV. a Syrian was dispatched to Rome from the patriarch of Alexandria, with letters to that pope; wherein he acknowledged his authority, and promised obedience; desiring a person might be dispatched to Alexandria, to treat about a re-union of his church to that of Rome: pursuant to which, Pius IV. successor to Paul, chose F. Roderic, a Jesuit, whom he dispatched in 1561, in quality of apostolical nuncio. But the Jesuit, upon a conference with two Cophts deputed for that purpose by the patriarch, was made to know, that the titles of father of fathers, pastor of pastors, and master of all churches, which the patriarch had bestowed on the pope in his letters, were no more than mere matters of civility, and compliment; and that it was in this manner the patriarch used to write to his friends: they added, that since the council of Chalcedon, and the establishment of several patriarchs independent of one another, each was chief and master of his own church. This was the answer the patriarch gave the pope, after he had received a sum of money remitted to him from Rome, by the hands of the Venetian consul.

COPHTIC, or COPTIC, the language of the Cophts, the ancient language of the Egyptians, mixed with a great deal of Greek, the characters it is written in being all Greek. It has a form and construction peculiar to itself: it has no inflections of the nouns or verbs; but expresses number, case, gender, person, mood, tense, and possessive pronouns, by letters and particles prefixed.

F. Kircher is the first who published a grammar and vocabulary of the Cophtic. There is not known any book extant in the Cophtic, except translations of the Holy Scriptures, or of ecclesiastical offices; or others that have relation thereto, as dictionaries, &c.

The ancient Cophtic is now no longer found but in books; the language now used throughout the country is Arabic. The old Cophtic, which Kircher maintains to be a mother tongue, and independent of all others, had been much altered by the Greeks: for besides that it has borrowed all its characters from the Greek, with a very little variation, a great number of the words are pure Greek. Vossius, indeed, asserts, that there was no Cophtic language till after Egypt became subject to the Arabs. The language, according to him, is a mixture of Greek and Arabic: the very name thereof not being in the world till after the Arabs

were masters of the country. But this, M. Simon observes, proves nothing; except that what was anciently called *Egyptian*, has since by the Arabs been called *Cophtic*, by a corruption of speech. There are, it is true, Arabic words in the Cophtic; yet this by no means proves but that there was a language before that time, either Cophtic or Egyptian. Pietro de la Valle observes, that the Cophts have entirely lost their ancient tongue; that it is now no longer understood among them; that they have nothing extant therein but some sacred books; and that they still say mass in it.

All their other books have been translated into Arabic, which is their vulgar tongue; and this has occasioned the originals to be lost: it is added, that they rehearse the epistles and gospels in the mass twice; once in Arabic and once in Cophtic. Indeed, if we believe F. Vansleb, the Cophts say the mass in Arabic, all but the epistles and gospels, which they rehearse both in that and Cophtic.

COPHTIC Bible. See BIBLE.

COPHTIC Liturgies are three; one attributed to Basil, another to St Gregory, and the third to Cyril: they are translated into Arabic for the use of the priests and people.

COPIATA, under the western empire, a grave digger. In the first ages of the church there were clerks destined for this employment. In the year 357 Constantine made a law in favour of the priests copiatæ, i. e. of those who had the care of interments; whereby he exempts them from the lustral contribution which all other traders paid. It was under him also that they first began to be called *copiatæ*, q. d. clerks destined for bodily labour, from *κοπος*, or *κοπω*, *scindo, cado, ferio*, "I cut, beat," &c. Before that time they were called *decani* and *lecticarii*; perhaps because they were divided by decads or tens, each whereof had a bier or litter for the carriage of the dead bodies. Their place among the clerks was the next in order before the cantors.

COPING of a wall, the top or cover of a wall, made sloping to carry off the water.

COPING over, in carpentry, a sort of hanging over, not square to its upright, but bevelling on its under side till it end in edge.

COPIST, in diplomatic science, signifies a transcriber or copier of deeds, books, &c.

COPPA, in law, a cop or cock of grass, hay, or corn, divided into titheable portions; as the tenth cock, &c. This word in strictness denotes the gathering or laying up the corn in cops or heaps, as the method is for barley or oats, &c. not bound up, that it may be the more fairly and justly tithed: and in Kent they still retain the word, a *cop* or *cap* of hay, straw, &c.

COPPEL. See CUPLE.

COPPER, the finest of the imperfect metals, called by the alchemists *Venus*, on account of its facility of uniting with a great number of different metallic substances. Its colour, when pure, is pale red, and its specific gravity from 8.7 to 9.3, which depends not only on its degree of purity, but also on its condensation by hammering. The specific gravity of Japan copper is to water as 9000 to 1000; but that of the Swedish kinds only as 8784 or 8843.—The colour, when

Cophitic.
||
Copper.

Copper.

when clean, is very brilliant, but it is extremely liable to tarnish. It has a disagreeable smell, very perceptible on friction or on being heated; its taste is styptic and nauseous, but less perceptible than that of iron. Its tenacity, ductility, and hardness, are very considerable, and its elasticity superior to that of any other metal except steel. From this last quality masses of the metal emit a loud and lasting sound when struck; and this more especially when cast into a proper form viz. such an one as may make the metal vibrate in the most simple manner possible. Thus, if cast into the hollow form of a bell, without any cracks or imperfections, an uniform tone will be produced by it; or at least the tones produced by the stroke will consist of a single predominant one, and of others that have an agreement with it. When broken by often bending backward and forward, it appears internally of a dull red colour, without any brightness, and of a fine granulated texture; not ill resembling, as Cramer observes, some kinds of earthen ware. It continues malleable in a red heat, and in this state extends much more easily than when cold; but has not that valuable quality of iron, by which two pieces cohere together when heated to a great degree. In a heat far below ignition, the surface of a piece of polished copper becomes covered with various ranges of prismatic colours; the red of each order being nearest to the end which has been most heated. Reduced to a fine powder or even to filings, and thrown across a flame, it produces blue or green colours, whence its use in fireworks. It requires a fierce heat to melt it; less, according to Mr Wedgwood than gold or silver*, but more according to some other metallurgists.—It is remarkably impatient of moisture when in a state of fusion; and the contact even of a very small quantity of water will cause a vast mass of melted metal to be thrown about with incredible violence, to the imminent danger not only of the bystanders but even of the strongest furnaces and buildings. Effects of this kind are said to have been produced by so slight a cause as the workmen spitting in a furnace full of melted copper.

Copper is found in the bowels of the earth in the following states.

¹
Native copper.

I. Native copper, having the red colour, the malleability, and all the other properties of the metal. It is distinguished, says Mr. Fourcroy, into two kinds; copper of the first formation and copper of the second formation or cementation. The copper of the first formation is dispersed in laminae or fibres, in gangue almost always quartzose; some of its crystals resemble a kind of vegetation, but other specimens are in masses or grains. Copper of cementation is commonly in grains or superficial laminae, on stones or on iron: this last appears to have been deposited in waters containing vitriol of copper which has been precipitated by iron. Native copper is found in many places of Europe; particularly in various parts of Scotland, England, and Wales; at St Bell in Lyons; at Norberg in Sweden, and Newfol in Hungary. It is also to be met with in several parts of America.—Mr. Kirwan says, it is met with either of its own peculiar colour, or blackish or grey; and that either in grains or in large shapeless solid lumps; in a foliated, capillary, or arborescent form, or crystallized in quadrangular pyramids, in or on clay, chert, quartz, fluors,

zeolytes, &c. He accounts for its origin, by supposing it to have been originally precipitated by iron from waters which held it in solution, which is the purest sort; but in many cases it could not have been produced in that manner; and then this sort is never very pure, but mixed with gold, silver, or iron, or with sulphur; which last combination is called *black copper*.

Native copper is found in very considerable quantities at Cape Lizard in Cornwall; it is formed into threads or branches, and lies in veins of some thickness, contained in blackish serpentine mixed with brownish red, and covered externally with a greenish nephrites, partly adherent to it and partly loose. Native copper, in large lumps, has also been found in the same rocks: but a more considerable quantity is found at Huel Virgin in the same county. Here it shoots into various branches and in various directions: the pieces seem to be formed of small rhomboidal crystals interspersed with quartz, the impressions of which are to be seen in the copper itself; from whence we might conclude that the quartz existed before the metal. Some of these lumps of native copper have been found in this spot that weighed from 20 to 30 pounds; and in the month of March 1785, there were no less than 28 millions of pounds of rich copper ore extracted from this mine. At a place called *Catar-rach*, contiguous to Huel Virgin, some crystallized native copper has been found, with the transparent vitreous copper ore, to be afterwards mentioned, crystallized in octahedrons of a ruby colour; though the latter now begins to be very scarce. Near this place also a compact native copper is found in lumps of a spherical form; the copper either still in its metallic form, or beginning to be transformed into red copper-glass imbedded in decayed granite. Native copper of a tender and moss-like form, united to vitreous ruby copper ore, crystallized in rhombs, is found in the cliffs of the mountains composed of killas, near Pol-dry.—An indurated iron-clay has lately been found under the surface of the sea in the Faro isles, in which there is scattered a zeolite with native copper.

II. Mineralized by fixed air; of which there are several varieties. 1. Red copper, or hepatic ore of copper. This is known by its red dusky colour, similar to that of the scales beat off from copper by hammering. It is seldom met with, and then is generally mixed with native copper and mountain green. Sometimes it is crystallized in octahedrons or silky fibres, and is called *flowers of copper*. Mr Kirwan says, that it is sometimes met with in a loose form, and generally called *copper ochre*; but is usually of a moderate hardness, though brittle; sometimes crystallized and transparent, either in a capillary form, or in cubes, prisms, or pyramids: it effervesces with acids, and is found in Scotland, England, and Germany. According to Mr Fontana, 100 parts of it contain 73 of copper, 26 of fixed air, and one of water. Mr Kirwan distinguishes the hepatic ore as being of a brown colour. It contains a variable proportion of iron or pyrites, and sometimes sulphurated copper; and hence affords from 20 to 50 per cent. of copper. It is often *iridescent*, (we suppose showing the colours of the rainbow). 2. Earthy copper, mountain-green, green chrysocolla or malachite. The last, according to Mr Kirwan, looks like

Copper.

* See *Chemistry*,
p. 104.

²
Where found.

³
Different
ores mineralized with
fixed air.

Copper.

4
Mountain
green.

green jasper, but less hard, and does not strike fire with steel, is of a radiated or equable texture, generally of an oval form, and the size of an egg, but sometimes forming capillary filaments. Muschenbroek fixes its specific gravity from 3.5 to 3.994. It is sometimes mixed with calcareous earth and gypsum. According to Mr Fontana, 100 parts of the purest sort contain 75 of copper, and 25 of aerial acid and water. Mountain green is generally found in a loose and friable state, rarely crystallized and indurated, often mixed with calcareous earth, iron, and some arsenic. An hundred parts of the purest kind contain 72 of copper, 22 of aerial acid, and 6 of water.

A compact green copper ore, like malachite, mixed with grey copper ore, and likewise green velvet-like copper in the form of bunches, are found at Huel Virgin in Cornwall. At Carrarach, in the same county, is found also an amorphous green copper ore, on a decayed granite; and at St Menan, the same is found stratified betwixt quartz, and covered with a brownish iron. Cronstedt informs us, that both the green and blue colours of copper ores depend on a menstruum, and therefore may be often edulcorated or washed away. In Saalfeld they find also a sort of green, somewhat indurated, calcareous substance, containing copper: this, when broken, looks fat, and somewhat shining; but, upon the whole it resembles a jasper. It is there very improperly called a *green copper glass-ore*. Good copper is made of it; and, with a phlogistic substance, without being ustulated, it forms a kind of bell-metal fit for being employed for that purpose.

5
Malachite.

The malachite, according to Mr Fourcroy, is frequently found in Siberia, composing beds, some of which represent nipples of various magnitudes. Some specimens are composed of needles, converging towards a common centre. The grain of malachite is sufficiently hard to take a fine polish, and is therefore formed into toys of different kinds; but as it is frequently porous and full of unequal cavities, the solid pieces of a certain size are reckoned valuable. The strata in which it is found are often of different shades of green. The mountain grain is a true ochre of copper, of a more or less deep green, not heavy, and unequally distributed on its gangue: it appears to be combined with the cretaceous acid. There are two varieties besides the malachite, viz. the simple mountain green, and that which is crystallized, or the silky copper ore of China. It is common in the Hartz, and likewise in China. It is very pure, and crystallized in long silky bundles of considerable solidity. To these three states, says Mr. Fourcroy, we may add a beautiful green sand, brought by M. Dombey from Peru, which appears to be a calx of this metal mixed with sand, and containing a small quantity of muriatic acid.

6
Mountain
blue, or
blue chry-
socola.

3. The third variety of this species is the mountain blue, or blue chrysocola. This, according to M. Fourcroy, is a calx of copper of a deep blue colour, sometimes regularly formed in rhomboidal prismatic crystals of a fine blue, in which case it is called azure of copper. "All these calces of copper (says he) appear to have been precipitated from vitriolic solutions of copper, by the intermedium of calcareous earths through which the waters have transuded. M. Sage considers these blue copper ores as combinations

of copper with the volatile alkali; from which he affirms that they differ only in their degree of solubility; he likewise thinks that the malachite is produced from this blue, which he calls transparent azure copper ore; but most mineralogists are of a different opinion." Mr Kirwan tells us, that 100 parts of this ore contain about 69 of copper, 29 of aerial acid, and 2 of water. Mr Morveau, in the Memoirs of the Academy of Dijon for 1782, has shown, that the calces of copper are determined to a blue rather than a green colour, by a greater proportion of phlogiston.

III. Cupreous stones. These are the *turquoise* and *lapis armenus*. The former of these is improperly called a stone, being the tooth of an animal penetrated by the blue calx of copper. It loses its colour when heated; is opaque, of a lamellar texture, and susceptible of a fine polish; its specific gravity from 2.5 to 2.908; some are of a deep blue, some more white, and become deeper when heated. They are found in Persia and in Languedoc in France; the copper may be extracted from them by distilled vinegar. Reaumur informs us, Mem. Par. 1715, that nitrous acid will not dissolve the Persian turquoise, though it will that of France. The lapis armenus has calcareous earth or gypsum for its base; whence it sometimes effervesces with acids and sometimes not. It is used in painting, when ground to a fine powder, under the name of *bleu*. To these Mr Fourcroy adds "copper mineralized by the muriatic acid and united to clay." This ore has been confounded with talc; and it was exposed to sale at Paris, in the year 1784, under the name of green mica. It consists of small beautifully green crystals, or small brilliant scales. It was discovered by Mr Forster in the mines of John Georgenstadt; the green cupreous sand of Peru already mentioned, perhaps belongs to the same class.

7
Turquoise
and lapis
armenus.

IV. Copper mineralized by sulphur, with scarce any iron, improperly called vitreous copper ore. This is a deep violet grey, greenish brown, or liver colour; melting with a very gentle heat, ponderous, sometimes flexible, and always yielding to the knife. When broken it appears of a bright golden colour. It is sometimes found in shapeless masses, sometimes regularly crystallized; is much more fusible than pure copper, and has a specific gravity from 4.81 to 5.338. It is found in mines of other copper ores, in limestone, spar, quartz, mica, and clay: it is the richest of all the copper ores; affording from 80 to 90 per cent. of copper, 10 or 12 of sulphur, and a small proportion of iron.

8
Copper mi-
neralized
by sulphur.

V. Copper mineralized by sulphur with a large proportion of iron, azure copper ore; does not differ from the preceding but in the quantity of iron it contains, which sometimes amounts to 50 per cent. It yields 50 or 60 pounds of copper per hundred, the rest being sulphur. The less iron this ore contains, the richer it is in copper; and it has by many been confounded with indurated mountain blue.

9
With a
large pro-
portion of
iron.

VI. Copper mineralized by sulphur, with much iron, per ore, or yellow copper ore, or yellow pyrites. The colour yellow pyrites. of this is yellow, or yellow mixed with red or green, or variegated like a pigeon's neck; it is inferior in hardness to the other pyrites, not readily giving fire with steel as they do. It is sometimes found crystallized, and sometimes in shapeless masses; its specific gravity

10
Yellowcop-
per ore, or
yellow py-
rites.

Copper. gravity is about 4.16. It occurs both in separate masses and embodied in stones, being the most common of all the copper ores. The crystallized kind affords least metal, containing only from 4 to 8 per cent. the remainder being chiefly iron. It is generally reddish, and is in fact only a martial pyrites with a small portion of copper: the greenish yellow contains most sulphur, and from 15 to 20 per cent. of copper; the pure yellow contains most copper, viz. from 20 to 30 per cent. "The cupreous pyrites (says M. Fourcroy) often present very brilliant blue or violet colours at their surface, which are produced by the decomposition of their principles: they are then called *chatoyant* ores of copper, or ores resembling the peacock's tail: they commonly contain a large quantity of sulphur; a small quantity of iron, and are not rich in copper; such are the ores of Derbyshire in England, some of those of St Bell in Lyons, and many ores of Alsatia, such as those of Caulenbach and Feldens."

¹¹ **Arsenical or grey copper ore.** VII. Copper united to sulphur, arsenic, iron, and a small quantity of silver. This is called arsenical or grey copper ore, and is of a white, grey, or brown colour; of moderate hardness, very brittle, sometimes crystallized, and often of an indeterminate figure. It is very difficult of fusion, and more ponderous than the former. It contains from 35 to 60 per cent of copper; the brown is the richest in copper; the white or grey contains most arsenic; and if the silver it contains exceed 1 or 2 per cent. it is called grey silver ore. It is found embodied in all sorts of stones, and mixed with other copper ores, as well as with the ores of other metals.

A great variety of sulphurated copper ores is to be met with in the mines of Cornwall, viz. a whitish-grey ore crystallized in small triangular and quadrangular pyramids, with truncated points, is found along with the solid copper ore at Poldice and Delcoth: but the richest are the solid grey ones found in various places; some of which may be cut with a knife like the soft vitreous silver ore. The most remarkable of the yellow ores is the stalactitical ore, of an hemispherical form, called *run-yellow-copper*, often variegated with different colours. A compact red glassy copper ore, covered with mountain green, or green copper, and with calciform copper of a vermilion red colour, is found in crystallized quartz, mixed with tender green mica. We also meet with an *olive-green coloured* copper ore which is arsenical, and crystallized into tender spiculæ of about three inches long, standing up straight, either single or fasciculated, or radiated, found on the granitical mountain at Carrarach. These crystals melt before the blow-pipe with an arsenical smoke, and afterwards melt, forming a button of a grey colour, which, on being melted again with borax, soon produces a very pure copper. Another kind of arsenical cupreous crystals are likewise met with in the form of green cubes run together, with smooth and shining surfaces, upon grey copper ore, in a mass of crystallized compact quartz, with various crystals in itself; and greatly resembling small cubes of fluor.

¹² **Brown or blende copper ore.** VIII. Copper mineralized by sulphur and arsenic with zinc and iron; brown or blende copper ore. Mr Monnet found this ore only at Catherineberg in Bohemia; it is brown, granulated, and very hard, and contains from 18 to 30 per cent of copper.

This kind of ore may be analysed in the liquid way by solution in nitrous acid, and precipitation of the copper by iron. The iron and zinc are precipitated by the Prussian alkali; the precipitate is then calcined and redissolved in nitrous acid, and the solution evaporated to dryness. The iron being thus dephlogisticated, becomes insoluble in the nitrous acid, but the calx of zinc is redissolved, and again precipitated by the Prussian alkali. An hundred grains of this precipitate are equivalent to 20 of zinc in its metallic state; and 100 grains of dephlogisticated iron are equivalent to 73½ of iron in its metallic state.

¹³ **Slaty copper ore.** IX. Argillaceous schistose, or slaty copper ore, seems to consist of the vitreous copper ore intimately combined with schistus, and not barely dispersed through it in visible particles: it is of a brown or black colour, lamellar texture, and very heavy; affording from 6 to 10 per cent. of copper, and is of a difficult fusion, unless limestone be added. It contains a little bitumen, calcareous earth, and iron.

¹⁴ **Bituminous ore.** X. Bituminous copper ore is a kind of pitcoal found in Sweden. It burns with little or no flame, but leaves ashes from which copper is extracted.

¹⁵ **Black copper ore.** XI. Black copper ore, of the colour of pitch. Mr Gellert denominates it copper ore in scorice: it is a residuum of the decomposition of the yellow and grey copper ores which contain neither sulphur nor arsenic, and approaches to the state of malachite; it has a black shining appearance like pitch.

¹⁶ **Antimonial ore.** XII. Copper united to sulphur and arsenic containing antimony, or antimonial copper ore, is mentioned by Mr Sage in his Elements of Mineralogy. It is grey, and bright in its fracture like antimony, and contains from 14 to 20 per cent. of metal.

XIII. Copper dissolved by the vitriolic acid. In the year 1673, our countryman Dr. Brown visited a famous copper-mine at Hern-grundt, about seven English miles from Newsol in the Upper Hungary; and he informs us, that there he saw two springs, called the *Old* and *New Ziment*, which turned iron to copper, as it is vulgarly said. But the case is, that the iron is dissolved by the vitriolic acid of this spring-water, and the copper is precipitated in its metallic form in the place of the iron. It has been the custom in Germany for some centuries to collect the copper contained in these waters, by filling with them some pits made purposely for this operation. Old iron is thrown in, and being dissolved by the acid, is suspended in the water, whilst the copper is precipitated: the mud being raked out, is melted afterwards in a furnace, and a very fine copper is produced: from 100 tons of iron, 84 and sometimes 90 tons of fine copper is thus produced.

But although this method of obtaining copper has been long practised in Germany, yet it is but of late years, says Bishop Watson, (p. 238. of the first volume of his Essays,) that any successful attempts of this kind have been made either in England or Ireland. In this last, at least, it was quite owing to an accident. There are the very celebrated copper-mines at Arklow, in the county of Wicklow in Ireland; and from these mines issues a great quantity of water, strongly impregnated with vitriol of copper. One of the workmen having accidentally left an iron shovel in this water, he found it some weeks after so incrustated with a coat of

Copper.

of copper, that it was thought to be changed into copper.

The proprietors of the mines, in pursuance of this hint, made proper pits and receptacles for the water; and have obtained, by means of soft iron bars put into them, such quantities of copper, that these streams are now of as much consequence as the mines themselves. One ton of iron produces near two tons of copper mud; and each ton of mud produces, when melted, 16 hundred weight of copper, which sells for L. 10. Sterling a ton more than the copper which is fluxed from the ore.

There is in the isle of Anglesey, on the coast of North Wales, a mountain called *Paris*, which abounds in copper-ore, the bed of ore being above 40 feet in thickness. The lessees of this mine annually raise from six to seven thousand tons of merchantable ore, and daily employ above 40 furnaces in smelting it. This ore contains a great quantity of sulphur, which must be separated by roasting before it can be fluxed into copper. The phlogiston, with part of the vitriolic acid, is dispersed into the air by the force of the fire; another part of the acid attacks and dissolves such a quantity of the copper, that the water in which the roasted ore is washed (by means of old iron immersed in it according to the German method) produces great quantities of fine copper, so that the proprietors have there obtained in one year near 100 tons of the copper precipitated from this water.

If this water was afterwards evaporated, it would yield green vitriol or vitriolated iron, at nearly the rate of 200 tons of vitriol for each hundred tons of iron at least; which, at the rate of L. 3. Sterling per ton, might perhaps produce very good profit to the undertakers, if any should settle such a manufacture there.

Besides the celebrated copper-mines at Arklow in the county of Wicklow in Ireland, there are no less than seventeen different places in Britain in which copper-mines are found, as mentioned by Dr Campbell in the 2d vol. p. 44. of his *Political Survey of Britain*. These are Cardiganshire, Cheshire, Cornwall, Cumberland, Derbyshire, Devonshire, Lancashire, Isle of Man, Northumberland, Shropshire, Somersetshire, Staffordshire, Yorkshire, Wales, Warwickshire, Westmoreland, and North Britain: some that are worked at this time give such large products of this metal, that the opening more copper-mines in this island would probably affect the copper-trade of Europe in a very considerable manner. The Ecton mine, in the estate of the Duke of Devonshire, on the frontiers of Derbyshire, but properly situated on the county of Staffordshire, produces at least 300 tons of copper *per annum*. That of the mountain called *Paris*, in the island of Anglesey, whose bed of ore is about 40 feet in thickness, produces about 1500 tons of copper in the year; and the copper-mines of Cornwall produce no less than 4000 tons in the same period. Mr. Jars, who visited these mines in the year 1770, found, upon calculation, that the annual produce of these mines amounted to L. 140,000 Sterling; and M. H. Klaproth, in his *Observations on the Fossils of Cornwall*, just published (in 1787), asserts that this account is not an exaggerated one.

Copper is purified with less difficulty than iron; and

its goodness is judged of by the bright redness of its colour.

The impurity of copper proceeds from the mixture of heterogeneous substances that are alloyed with it, on account of being naturally contained in the copper-ores. Iron and arsenic are the chief of these natural mixtures. The copper-ores of variegated colours, the white copper-ores, and generally those mineralized by sulphur, contain a greater proportion of iron; whilst the blue and green copper-ores commonly produce a purer metal, being free, for the most part, of any considerable ferruginous mixture. The great aim, therefore, of the metallurgist must be directed to separate these mixtures from the copper, beginning by the proper examination of the ore, and by ascertaining the proportion of sulphur that may be required to scorify the quantity of iron there contained. The ore should always be roasted by a slow fire, in a close furnace, which contributes the best towards scorifying the ferruginous and heterogeneous mixtures; and the same operation must be repeated after the second and third fusion of the metal, till its grain becomes of an homogeneous fine texture. The mixture of sulphureous pyrites in the fusion of the metal contributes towards obtaining this object; if their quality be chosen according to the quantity of sulphur wanting. But in the second, third, and following operations, only pure sulphur should be added, to scorify the remainder of the iron that is still intermixed with the copper. This should be done when the metal is already well fused; covering it immediately with a proper quantity of charcoal, and separating the scoria or dross formed on the surface of the fused metal.

The copper extracted from those mines near New-sol, in Upper Hungary, is said to be usually melted 14 times before it is fit for use. These are the greatest copper-mines in all Hungary. There are, however, other mines, whose copper requires far less fusions to be well purified. The above was the process of Mr Delius, director of the mines of Bannat near Temes-ware in Hungary, proposed by him to the imperial board of the Austrian mines.

Pure copper allowed to cool slowly will form itself into regular crystallizations, which the Abbe Mongez describes as quadrangular pyramids, sometimes solid, and sometimes composed of other similar small pyramids laterally adhering. When heated it becomes coloured on its surface, nearly in the same manner as steel; the colours are blue, yellow, and lastly violet; it does not melt but by a violent white heat, though much inferior to that which melts iron. When in a state of fusion it appears covered with a green flame, which the filings of the metal likewise produce when projected through flame; and hence are used in fireworks, as has been already remarked. The crystallization of the metal above mentioned is best perceived by suffering the metal to cool slowly; and after the surface is become congealed, the fluid portion being poured off, the remaining solid part is found to be crystallized in pyramids, which are more regular and large in proportion as the fusion has been more complete and cooling more gradual. The pyramids, according to Fourcroy, are quadrangular, and appear to be formed of a great number of octahedrons inserted into one another

Copper.

17
Copper cry-
stallizes
when cool

18
Burns with
a green
flame when
melted.

19
Particular
description
of the cry-
stals.

Copper.

20
How the
calx is ob-
tained.

another. When heated with excess of air, this metal burns at its surface, and is converted into a calx of a dark red colour, in proportion as it absorbs the base of the dephlogisticated part of the atmosphere. The calx may be easily obtained by heating a ball of copper red-hot, the form of which causes the calx to scale off; and the same effect takes place when red-hot copper is quenched in cold water; the separation of the calx being promoted by the sudden contraction of the metal. This calx is called the scales of copper, and may be further calcined till it becomes of a deep brown; after which, by violent heat, it may be melted into a blackish or deep reddish brown mass. The scoriae may partly be reduced without any additional phlogiston; for the founders, who buy them of the copper-smiths, take no other trouble with them than that of throwing them into large crucibles on the melted copper, with which they incorporate by fusion; and the same method is made use of to melt the filings. The calx of copper appears to possess some saline properties, but its nature has not yet been ascertained.

21
The scoriae
partly redu-
ced without
addition.

22
Copper
rusts by ex-
posure to
the air, but
without
any corro-
sion of its
internal
parts.

Copper calcines when exposed to the air, and is converted into a green rust or calx, which is in some degree soluble in water, and communicates a taste as well as pernicious qualities to it. It is remarkable, however, that this rust does not corrode the internal parts like that of iron, but is confined to the surface; and thus, instead of destroying, contributes, for a long time at least, to the preservation of the metal. This is particularly observable in the antique medals and statues, which are very well preserved under a covering of rust. The antiquarians call this crust *patina*, and put a high value upon the pieces of antiquity covered with it; but the Italians and others have got a method of imitating this crust, and thus there is great danger of being deceived.

23
Patina, a
name for
the rust of
copper on
medals.

24
Qualities of
this metal
when taken
into the hu-
man body

Copper, when taken into the human body, acts as a violent emetic, and has been generally accounted poisonous, though lately received with some applause into the materia medica as a tonic. The pernicious qualities, however, and very disagreeable taste which it certainly communicates on some occasions, render it highly necessary to observe some cautions in the use of this metal, of which so many kitchen utensils are made. Besides an exact attention to cleanliness, it is altogether improper to let any fluid remain in a copper vessel till it be cold; for copper is much more calcinable in the cold than when heated. Mr Fourcroy explains this by supposing the calcination to be produced by water in a state of extreme division: as long, therefore, as the fluid is boiling and the vessel hot, the aqueous vapour does not adhere to its surface; but when the vessel is cold, the drops of water which adhere to its sides calcine it, and reduce it to a green calx. The air and the cretaceous acid (fixed air), he says, also contribute greatly to this calcination; for by distilling the rust of copper fixed air has been obtained.

25
Of the tin-
ning of
copper.

In order to prevent the pernicious effects of copper, the vessels made of it are usually covered with tin in the inside. To tin copper-vessels, they are first scraped clean and bright; after which they are rubbed with sal ammoniac to clean them more perfectly. They are then heated and sprinkled with powdered resin, which prevents the surface of the copper from being calcined; after which the melted tin is poured on and spread a-

lout. It is, however, justly complained, that the tinning of copper-vessels is not sufficient to defend them from the action of the air, moisture, and saline substances; because these vessels, even when well tinned, are observed to be subject to rust. This might possibly be remedied by a thicker covering of tin; and a manufacture of this kind was some time ago established at Edinburgh, though it does not appear to have much attracted the notice of the public; which, however, is no objection to the usefulness of the invention. The method employed was to make the surface of the copper very rough with a machine contrived for that purpose, and the tin put upon it in this situation; after which the copper was hammered smooth as before. Mr Fourcroy objects to this thicker covering of tin, that "there is reason to fear that a degree of heat superior to that of boiling water, to which these vessels are often exposed, would melt the tin and leave the surface of the copper uncovered." This objection is surely void of foundation: for as long as there remains any liquid in the vessel, the tin will not melt though the heat were applied to it directly without any intervention of copper; and if a dry heat were applied, a thin covering of tin would be still less able to resist it than a thick one. Our author, however, observes, that to prevent this accident the tin may be alloyed with iron, silver, or platina, to diminish its fusibility, and render it capable of being applied in thicker strata on the copper. Alloys of this kind, he tells us, are already used in several manufactures.

The very small quantity of tin required to cover the surface of the copper is surprising; a vessel of 9 inches in diameter and $3\frac{1}{4}$ inches in depth, being found to gain no more than 21 grains by this operation. This small quantity is nevertheless sufficient to prevent the dangers which might arise from the use of copper-vessels; provided care be taken not to allow substances capable of dissolving the tin to remain too long in them; but more especially that the tin be frequently renewed, as the friction, heat, and action of spoons, with which the included substances are stirred, very soon destroy it. There is likewise another cause of apprehension, according to our author, viz. that the tin is often alloyed with lead, even to the quantity of one-fourth of its weight; in which case the latter may exert its mischievous influence, especially as it is known that lead is easily soluble in fatty substances. To prevent this sophistication, he is of opinion that government should take sufficient care that the braziers be not deceived in the tin they purchase, and that they may not employ any but the Malacca or Banca tin in the state it is received from the East Indies, without having been alloyed or melted by the pewterers. A better method, however, seems to be that proposed by M. Folie of Rouen, to use vessels of forged iron covered over on the inside with zinc, which, he says, have already been used with advantage by certain persons; and it were to be wished that its use might become more general.

Copper is also used in mixture with other metals, particularly tin and zinc, in enamel-painting, dyeing, &c. Mixed with tin in considerable quantity, it produces BELL-METAL; with a smaller proportion BRONZE; with zinc it forms BRASS, PINCHBECK, or SIMILOR, MANHEIM GOLD, &c. according to the proportion; it being

Copper.

26
Very small
quantity of
tin required
for this
purpose.

27
Best kind of
tin ought to
be employ-
ed

28
Zinc re-
commend-
ed instead
of tin.

29
Various
mixtures of
copper with
other me-
tals.

Copperas
||
Copy.
30
Of its ef-
fects as a
poison.

being always observable, that the compounds most nearly resembling gold in colour have the least ductility, and are most brittle. See these articles, and CHEMISTRY-Index.

With regard to the poisonous qualities of copper when taken into the body, much less danger seems to arise than from those of arsenic, on account of its easy solubility; nor indeed have we met with any well authenticated instance of a person who has died in consequence of swallowing even verdigrease itself. In one case, where an unlucky boy had swallowed some bits of this substance thrown out of a chemist's laboratory, the symptoms were only violent sickness and vomiting, from which he recovered by drinking warm water largely; and probably nothing else would be requisite in any case, though Mr Fourcroy advises *emetics*, abundance of water, liver of sulphur, alkalis, &c. The use of emetics in such a case, however, seems altogether superfluous; since verdigrease, in the quantity of a grain or a grain and a half, has been ordered by some medical writers in the case of poison swallowed otherwise, as the emetic most quick in its operation that could be thought of.

COPPERAS, a name given to the factitious green vitriol. See CHEMISTRY-Index.

COPPERPLATE. See ENGRAVING.

COPPICE, or COPSE, a little wood, consisting of under-woods, or such as may be raised either by sowing or planting.

COPTOS (anc. geog.), a famous trading town of the Thebais, inhabited by Egyptians and Arabs, some distance from the Nile; others place it in a small island in the Nile, on which, however, it had a port. Here Isis, on hearing of the death of Osiris, cut one of her locks and put on mourning; and hence the name *Coptos*, signifying privation. A proof this of the antiquity of the place. And for this reason the Isiaci, or priests of Isis, were bald, according to Juvenal.

COPULATION, the act of generation, or the congress of the male and female, otherwise called *coition*. See GENERATION.

COPY, in a law sense, a transcript of a writing or instrument, made for the use and satisfaction of some of the parties concerned, or in order to preserve the memory thereof.

COPY is also used for an imitation of any original work; particularly a painting, draught, figure, &c.

COPY, among printers, denotes the manuscript or original of a book given to print from.

COPY-*Hold*, a tenure for which a tenant has nothing to show but the copy of the rolls made by the steward of the lord's court.

It is called a base tenure; because the tenant holds the land at the will of the lord. However it is not simply at the will of the lord, but according to the custom of the manor by which such estate is descendible, and the tenant's heirs may inherit it; and a copy-holder, so long as he does his services, and does not break the custom, cannot be ejected by the lord; and if he be, he shall have trespass against him. See the articles TENURE and VILLENAGE.

COPY-*Holder*, one who is admitted tenant of lands or tenements within a manor, which time out of mind by use and custom of the manor, have been demisable, and demised to such as will take them in fee-simple No. 91.

or fee-tail, for life, years, or at will, according to the custom of the manor by copy of court roll; but is generally where the tenant has such estate either in fee or for three lives.

COPY-*Right*, the right which an author may be supposed to have in his own original literary compositions; so that no other person, without his leave, may publish or make profit of the copies. When a man by the exertion of his rational powers has produced an original work, he has clearly a right to dispose of that identical work as he pleases; and any attempt to take it from him, or vary the disposition he has made of it, is an invasion of his right of property. Now the identity of a literary composition consists entirely in the sentiment and the language; the same conceptions, clothed in the same words, must necessarily be the same composition: and whatever method be taken of conveying that composition to the ear, or to the eye of another, by recital, by writing, or by printing, in any number of copies, or at any period of time, it is always the identical work of the author which is so conveyed; and no other man (it hath been thought) can have a right to convey or transfer it without his consent, either tacitly or expressly given. This consent may perhaps be tacitly given when an author permits his work to be published without any reserve of right, and without stamping on it any marks of ownership; it is then a present to the public, like the building of a church, or the laying out a new highway: but in case of a bargain for a single impression, or a total sale or gift of the copy-right; in the one case the reversion hath been thought to continue in the original proprietor; in the other the whole property, with its exclusive rights, to be perpetually transferred to the grantee. On the other hand, it is urged, that though the exclusive right of the manuscript, and all which it contains, belongs undoubtedly to the owner before it is printed or published; yet from the instant of publication, the exclusive right of an author or his assigns to the sole communication of his ideas immediately vanishes and evaporates; as being a right of too subtle and unsubstantial a nature to become the subject of property at the common law, and only capable of being guarded by positive statute and special provisions of the magistrate.

The Roman law adjudged, that if one man wrote any thing, though ever so elegantly, on the paper or parchment of another, the writing should belong to the original owner of the materials on which it was written: meaning certainly nothing more thereby than the mere mechanical operation of writing, for which it directed the scribe to receive a satisfaction; especially as, in works of genius and invention, such as a picture painted on another man's canvas, the same law gave the canvas to the painter. We find no other mention in the law of any property in the works of the understanding, though the sale of literary copies, for the purpose of recital or multiplication, is certainly as ancient as the times of Terence, Martial, and Statius. Neither with us in Britain hath there been (till very lately) any final determination upon the right of authors at the common law. It was determined in the case of *Miller v. Taylor* in B. R. Pasch. 9. Geo. III. 1769, that an exclusive copy-right

Copy.
~

in

Coques. in authors subsisted by the common law. But afterwards, in the case of *Donaldson v. Becket*, before the house of lords, which was finally determined 22d February 1774, as it was held, that no copy right subsists in authors, after the expiration of the several terms created by the statute 8 Ann c. 19. This statute declares, that the author and his assigns shall have the whole liberty of printing and reprinting his works for the term of 14 years, and no longer; and also protects that property by additional penalties and forfeitures; directing farther, that, if at the end of that term, the author himself be living, the right shall then return to him for another term of the same duration.

COQUES (Gonzalo), an esteemed painter of portraits and conversations, was born at Antwerp in 1618, and was a disciple of the old David Ryckaert; under whose direction he applied himself diligently to cultivate those promising talents which he possessed; not only by practising the best rules administered to him by his instructor, but also by studying nature with singular attention.—He was a great admirer of *Vandyck*; and fixing on the manner of that great artist as his model, had the happiness of so far succeeding, that next to him he was esteemed equal to any other painter of his time.—In the school of *Ryckaert* he had been accustomed to paint conversations, and he frequently composed subjects of fancy like *Teniers*, *Ostade*, and his master; and by that habit he introduced a very agreeable style of portrait-painting, in a kind of historical conversations, which seemed much more acceptable to persons of taste than the general manner of painting portraits, and procured him great reputation and riches. In that way he composed several fine pictures for king *Charles I.* and likewise several for the archduke *Leopold*, and the prince of *Orange*; which latter prince, as a mark of respect, presented *Coques* with a rich gold chain, and a gold medal, on which the bust of that prince was impressed. He died in 1684.—He had an excellent pencil; his portraits were well designed, with easy natural attitudes; he disposed the figures in his composition so as to avoid confusion or embarrassment; he gave an extraordinary clearness of colour to his heads and hands; and his touch was free, firm, and broad, a circumstance very uncommon in works of a small size.

COQUIMBO, a port-town of *Chili*, in South America, situated at the mouth of a river of the same name, which discharges itself into the Pacific ocean. W. Long. 75. 10. N. Lat. 30. 0.

COR CAROLI, in astronomy, an extraconstellated star in the northern hemisphere, situated between the *comae Berenices*, and *ursa major*; so called by *Dr. Halley* in honour of king *Charles*.

COR-HYDRE, a fixed star of the first magnitude, in the constellation of *hydra*.

COR-LEONIS, in astronomy, a fixed star of the first magnitude, in the constellation *leo*.

COR-MELLE, a noted plant, common in the highlands of Scotland. Its roots dried are the support of the highlanders in long journeys, amidst the barren hills destitute of the supports of life; and a small quantity, like the alimentary powders, will for a long time repel the attacks of hunger. Infused in liquor it is an

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agreeable beverage, and, like the *Nepenthe* of the Greeks, exhilarates the mind. From the similitude of sound in the name, it seems to be the same with *chara*, the root discovered by the soldiers of *Cæsar* at *Dyrrachium*, which steeped in milk was such a relief to the famished army. Or we may reasonably believe it to have been the *Caledonian* food described by *Dio*, of which the quantity of a fœn would prevent both hunger and thirst; and this, says the historian, they have ready for all occasions.

CORACIAS, the *ROLLER*, in ornithology; a genus of birds of the order of *picæ*, the characters of which are: The bill is straight, bending towards the tip, with the edges cultrated: the nostrils are narrow and naked; the legs for the most part short; the toes placed three before and one behind, and divided to their origin. This genus is not confined to one spot of the globe, as one or other of the different species may be met with in all the four quarters of it.

1. The *garrula*, or garrulous roller, is about the size of a jay; the bill black, and at the base beset with bristles, but do not cover the nostrils: the head, neck, breast and belly, are of a light bluish green; back and scapulars, reddish brown; coverts on the ridge of the wing, rich blue, beneath them pale green; upper part and tips of the quills dusky; the lower parts of a fine deep blue; rump of this last colour: tail forked, of a light blue; the outer feather tipped with black above, and beneath with deep blue, as is the case with such part of the quill feathers as is black above; the other tail feathers are dull green: the legs are short, and of a dirty yellow. *Mr. Pennant* observes that these birds are frequent in several parts of Europe, in most parts of which it is a bird of passage. Mention is made of them in Sweden and Denmark on the one hand, and as far as Africa on the other; not that they are found in all the parts between, nor in the same plenty. *Willoughby* tells us, that in Germany, Sicily, and Malta, they are so common as to be sold in the markets, and in poulterers' shops. *Adanson* says, that "it comes to reside for some months of the summer in the southern parts of Europe, and goes back to spend the remainder of the year in Senegal," having shot one on-board the ship, on its passage, in April. *Frisch* observes, that it makes its nests in woods, where there is birch; that it does not come to its colour till the second year; flies in troops in autumn; often seen in tilled grounds, with rocks and other birds, searching for worms, small seeds, and roots. Its flesh tastes like that of a turtle. It is said also sometimes to make the nest in holes in the ground, in one of which nests two eggs were found. The nest is generally filthy, from the young evacuating their excrements therein; whence by some it was said to make the nest of excrements. We are told in the British Zoology, that it has been twice shot in England, and is remarkable for making a chattering noise, whence its name.

2. The blue striped roller is in length eight inches; the bill three quarters of an inch long, bent at the tip, and of a black colour: the irides are red; the general colour of the plumage deep blue-black, dashed with streaks of greenish blue; the tail and legs are black; it inhabits New Caledonia.

3. K

5. The

Coracias

Plate
CXLIX.

Coraco.

Corallina

2. The Chinese roller is of the size of a jay: The bill and irides are red: the head, hind part of the neck, back, rump, and upper tail coverts, are green; through the eyes on each side is a black stripe: the under parts of the body, from chin to vent, are yellowish white, tinged with green; but the thighs are grey: the wing coverts are olive brown; quills the same, with a mixture of chestnut in some; and others, nearest the body, tipped with white: the tail is five inches in length, and wedge-shaped, the outer feathers shortening by degrees like that of a magpie; all of them are more or less green, verging to black near the ends; the tips of all are white: the legs and claws are of a pale red, and longer than in other rollers. It inhabits China, and is called at Canton *Sauts-hoang*. It is not very common.

There are 13 other species enumerated by ornithologists; though many of them doubtful, and supposed to be only varieties.

CORACO-BRACHIALIS, in anatomy, the name of a muscle in the arm, serving to raise it upwards.

CORACOIDES, in anatomy, a small short process of the scapula. See ANATOMY, n^o 47.

CORACOMANTES, in antiquity, persons who foretold events from their observations on crows.

CORALLINA, or CORAL, in zoology, a genus belonging to the order of vermes zoophyta. The trunk is radicated, jointed, and calcareous. The species are eight, distinguished by the form of their branches, and are found in the ocean adhering to stones, bones, shells, &c. The corals were formerly believed to be vegetable substances hardened by the air; but are now known to be composed of congeries of animals, which are even endued with the faculty of moving spontaneously.

The islands in the South-sea are mostly coral rocks covered over with earth. The little creatures, which have scarce sensation enough to distinguish them from plants, build up a rocky structure from the bottom of that sea, too deep to be measured by human art, till it reaches the surface. Some of the coralline islands appear to be of a much older date than others; particularly the Friendly islands: and it is probable that, as these submarine works are continually going on, new islands may by that means frequently be produced.

M. de Puyssonnet of Marseilles, in consequence of a series of experiments and observations from about the year 1720 to 1750, seems to have been the first who threw a proper light upon the nature and productions of coral and similar marine substances. Those bodies which the count de Marfigli imagined to be flowers, this ingenious naturalist discovered to be insects inhabiting the coral; for upon taking branches of it out of the water, the flowers, which proceeded from a number of white points answering to the holes that pierced the bark, and the radiation of which resembled the flower of the olive-tree, entered into the bark, and disappeared; but upon being again restored to the water, they were some hours after perceptible. These flowers spread on white paper lost their transparency, and became red as they dried. The holes in the bark correspond to small cavities upon the substance of the coral; and when the bark is removed, there may be seen an infinite quantity of little tubes connecting the bark with the inner substance, besides a great number

of small glands adhering to them; and from these tubes and glands the milky juice of coral issues forth: the holes in the bark are the openings through which the insects that form these substances for their habitation come forth; and those cavities which are partly in the back, and partly in the substance, are the cells which they inhabit. The organs of the animal are contained in the tubes, and the glandules are the extremities of its feet, and the milky liquor is the blood and juice of the animal, which are more or less abundant in proportion to its health and vigour. When the insects are dead, they corrupt, and communicate to the water the smell of putrid fish. This juice or liquor runs along the furrows perceived upon the proper substance or body of coral, and stopping by little and little becomes fixed and hard, and is changed into stone; and being stopped in the bark, causes the coral to increase proportionably and in every direction. In forming coral, and other marine productions of this class, the animal labours like those of the testaceous kind, each according to his species; and their productions vary according to their several forms, magnitudes, and colours.

The coral insect, or polype, M. Puyssonnet observes, expands itself in water, and contracts itself in air, or when it is touched with the hand in water, or acid liquors are poured upon it: and he actually saw these insects move their claws or legs, and expand themselves, when the sea-water containing coral was placed near the fire, and keep them in their expanded state when separated from the coral in boiling water. Broken branches of coral have been observed to fasten themselves to other branches, and have continued to grow; and this is the case when they are connected with detached pieces of rock and other substances, from which no nourishment could be derived. The coral insects in their cells, not having been injured, continue their operations; and as they draw no nourishment from the stone of the coral, they are able to increase in a detached and separate state. Coral was found to be equally red in the sea as out of it; and it was more shining when just taken out of the water than even when it is polished; and the bark by being dried becomes somewhat pale. M. Puyssonnet found that it grows in different directions, sometimes perpendicularly downwards, sometimes horizontally, and sometimes upwards; and in the caverns of the sea, open to every exposure.

This system was little regarded, though first communicated to the Academy of Sciences at Paris in 1727, till Mr Trembley's discovery of the fresh-water polype; but since that time, it has been confirmed by the observations of M. Bernard de Jussieu on the sea-coasts of Normandy, and those of M. de Reaumur near Rochelle. M. Donati of Turin has also adopted the same hypothesis, viz. that coral is a mass of animals of the polype kind; and instead of representing the polype beds and cells which they contain as the work of polypes, he thinks it more just to say, that coral and other coralline bodies have the same relation to the polypes united to them, that there is between the shell of a snail and the snail itself, or the bones of an animal and the animal itself.

The same system has also been excellently illustrated and established by Mr Ellis, in answer to the objections

Corallina.

Corallina, tions of Dr Baister of Zealand, and Dr Pallas of Berlin; who still refer corallines to the vegetable kingdom.

There are properly but three kinds of coral; red, white, and black: the black is the rarest, and most esteemed; but the red was formerly used in medicine. It must be chosen thick, smooth, and shining, and of a beautiful red, not covered with any tartareous matter. However, this substance is now scarce ever prescribed by any intelligent practitioner.

When coral is newly taken up out of the sea, the small protuberances on its surface are soft, and yield, on being pressed, a milky juice which effervesces with acids. The cortical part with which the coral is all over covered is not near so compact as the internal, and may easily be taken off whilst fresh; and from this part it is usually freed before it comes to the market. The greatest coral trade is in Genoa and Leghorn. The small sprigs unfit for ornamental uses are in the shops levigated into a subtile powder; which, however, has no medicinal virtues superior to the common testacea. Coral is not unfrequently imitated by artificial compositions, some of which are made to resemble it exactly; but the abuse may be discovered by fire, the counterfeit not affording the alkaline earth which is afforded by the genuine coral. The colouring ingredients in the artificial coral are cinnabar and minium, both of which are easily discovered. The natural coral seems to receive its colour from iron; for spirit of vitriol acquires from it a ferruginous taste; and on calcining the coral, some particles are found among the ashes that are attracted by the magnet. Sixteen ounces of coral, according to Neumann, when distilled in an open fire, yield about six scruples and an half of volatile alkaline spirit, with two or three grains of an empyreumatic oil: from the caput mortuum calcined, five scruples and a half of fixed salt may be extracted. In former times, many extraordinary virtues were expected from this substance, on account of its fine red colour; and therefore a great number of methods were tried to extract this colour by means of spirit of wine. None of these, however, succeeded. A red colour was indeed sometimes obtained; but it turned out the same whether any coral was used in the operation or not. In some of these processes, however, the coral loses its colour. One method of making the tincture is by dissolving a pound of sugar in a little water, and then adding half a pound of wax. A pound of coral boiled in this mixture loses its redness, but is found to be unaltered in other respects. In order to prepare the tincture, the wax and sugar must be dissolved in spirit of wine.

CORAL FISHERY. Red coral is found in the Mediterranean, on the shores of Provence, from Cape de la Couronne to that of St Tropez; about the isles of Majorca and Minorca; on the south of Sicily; on the coasts of Africa; and, lastly, in the Ethiopic ocean, about cape Negro. The divers say, that the little branches are found only in the caverns whose situation is parallel to the earth's surface, and open to the south. The manner of fishing being nearly the same where ever coral is found, it will suffice to instance the method used at the bastion of France, under the direction of the company established at Marseilles for that fishery. Seven or eight men go in a boat commanded by the

patron or proprietor; and when the net is thrown by the caster, the rest work the vessel, and help to draw the net in. The net is composed of two rafters of wood tied cross-wise, with leads fixed to them: to these they fasten a quantity of hemp twisted loosely round, and intermingled with some large netting. This instrument is let down where they think there is coral, and pulled up again when the coral is strongly entangled in the hemp and netting. For this purpose, six boats are sometimes required; and if in hauling in, the rope happens to break, the fishermen run the hazard of being lost. Before the fishers go to sea, they agree for the price of the coral, which is sometimes more, sometimes less, a pound; and they engage, on pain of corporal punishment, that neither they nor their crew shall embezzle any, but deliver the whole to the proprietors. When the fishery is ended, which amounts one year with another to twenty-five quintals for each boat, it is divided into thirteen parts; of which the proprietor hath four, the casters two, and the other six men one each, the thirteenth belongs to the company for payment of the boat furnished them.

CORAL-Stone, a name for a kind of red and white agate which breaks in veins, and is found in Italy and some parts of Saxony. That of Rochlitz in Saxony is the most celebrated, and is found in globules which have a kind of crust about them.

CORALLINES, in natural history, were formerly reckoned a genus of plants, and Mr Tournefort enumerates 36 species of them; but in the Linnæan system they belong to the class of zoophytes, and are designed by modern naturalists to be submarine plant-like bodies, that consist of many slender finely divided and jointed branches, resembling some species of moss; or animals growing in the form of plants, having their stems fixed to other bodies: these stems are composed of capillary tubes, whose extremities pass through a calcareous crust, and open into pores on the surface. The branches are often jointed, and always subdivided into smaller branches, which are either loose and unconnected, or joined as if they were glued together. They are distinguished from plants by their texture and hardness: they also yield in distillation a considerable quantity of volatile salt; and their smell, in burning, resembles that of burnt horns and other animal substances. Many of the corallines seem to consist of a single tube, containing a single parent animal. Every branch emitted contains an offspring of this parent dependent upon it, and yet capable of producing its like in the emission of a new branch. Others consist of many such tubes united, rising up together, and encircling the deserted tubes of their progenitors, whose exuviae become the substratum of a rising generation, Mr Ellis distributes corallines into the *vesiculated*, *tubular*, *celliferous*, and *articulated* kinds.

Vesiculated corallines are distinguished by their horny hollow ramifications: most of them are furnished with little denticles on their branches, like leaves on mosses; and at certain seasons of the year they are furnished with small bodies like bladders, proceeding from their stems and branches, and differing in form according to the different species. Their colour, when dry, is of a yellowish or pale brown, and their nature is elastic. They are found adhering to rocks, shells, and

Corallines.

fucuses, by small root-like tubes: they recover their form in water, after having been dried; and when put into vinegar, they cause no effervescence. See Plate CXLVII. fig. 1. where *a* represents the sea-tamarisk in its natural size, and *A* in which the denticles are magnified. Fig. 2. *b*, *B*, is the sea-cypress; fig. 3. *c d*, *CD*, the small climbing coralline with well shaped cups.

Tubular corallines, are composed of a number of simple tubes, growing up nearly together; or of such branched ones as have neither denticles nor vesicles. These are horny and elastic like the former, and recover their original form in water. Some of them appear wrinkled like the wind-pipe, and others like the intestines of small animals. See fig. 4. *E*.

Celliferous corallines are those which appear, when magnified, to be fine thin cells, the habitations of small animals connected together, and disposed in a variety of elegant forms like branches. These effervesce with acids. See fig. 5. *F*, *f*, with part (*G H*) magnified.

Plate
CXI.VIII.

Articulated corallines consist of short pieces of a stony or cretaceous brittle matter, whose surface is covered with pores or cells, which are joined by a tough, membranous, flexile substance, composed of many small tubes of the like nature compacted together. The stony part is soluble in vinegar, and the other part remains entire. *a*, *A*, (fig. 6.) is the coralline of the shops. It is fixed to rocks and shells by stony joints, which, as they rise, are united to others by extremely fine and slender tubes: These may be discovered by a good eye, or a common magnifier. As the stems extend themselves, they become pennated by side-branches which come out opposite to each other, and are jointed in the same manner; the joints of this species are like the upper part of an inverted cone, but a little compressed: The whole surface is covered over with very minute circular-shaped cells like pores; see *B*, and *B 1*, where they are higher magnified. *B 2*, shews a cross section highly magnified. If a branch of this coralline is put into vinegar, these cells are dissolved with the whole cretaceous surface; instead of which there appear rows of minute ramifications, which seem to have communicated with each of these cells. Upon some specimens of this coralline, we may observe little small figures like seed-vessels, with which the branches frequently terminate: They are also found on the sides, as may be seen at *A*, where they are magnified:—When a branch is rendered soft by being steeped in vinegar, there may be squeezed out from the little knobs at the ends and sides, small twisted figures, like those at *A 1*, which are magnified higher at *A 2*.—We frequently find this coralline of different colours, as red, green, ash, and white; but all of it, by being exposed to the sun and air on the shore, becomes white.

The ancients have said great things of the virtues of the common coralline. Dioscorides prescribes it for mitigating the pain of the gout, and for preventing stagnations of the humours in any part; he says nothing of its virtues against worms, which are what we alone esteem it for. We give it in powder from 10 grains to a scruple or half a dram twice a-day in these cases, and that with a considerable good effect.

Besides the above, Mr Ellis enumerates other genera of marine productions; as the *keratophyta eschara*, sponges, and *alcyonium*; all which are the nests or matrices of sea animals. See *POLYGE*. The last class of marine bodies is formed like funguses of various figures, and with different sorts of covering; some having a gritty, and some a callous skin, with a spongy substance in the inside: other species are of a fleshy substance.

CORALLODENDRON, in botany. See *ERYTHRINA*.

CORALLOIDES (FRUTICES.) See *ESCHARA* and *KERATOPHYTA*.

CORAM (Captain Thomas), a gentleman remarkably distinguished by his humanity, was born about the year 1668, and spent the early part of his life in the station of master of a vessel trading to our colonies. Afterwards residing in the eastern part of the metropolis, among sea-faring people, where business often obliged him to come early into the city and return late, he frequently saw young children exposed in the streets through the indigence or cruelty of their parents. This excited his compassion, and induced him to project the foundation of an hospital for foundlings. In this humane design he laboured with indefatigable diligence for seventeen years; and by his application procured a number of the nobility and gentry to patronize and carry the scheme into execution, and at length obtained the royal charter for it. He was also highly instrumental in promoting the trade of America, by procuring a bounty upon naval stores imported from our colonies. He was likewise eminently concerned in setting on foot the colonies of Georgia and Nova Scotia. His last charitable design, in which he lived to make some progress, was a scheme for uniting the North American Indians more closely to the British interest, by an establishment for the education of Indian girls. In short, he spent the greatest part of life in labouring for the public, and experienced a fate too common in those who devote their talents to such laudable purposes; being at last indebted for subsistence to the voluntary subscriptions of some public-spirited persons, at the head of whom was the late Frederic Prince of Wales. Captain Coram died in 1751: and was interred, at his own desire, in a vault under the chapel of the Foundling Hospital.

CORAN, or **ALCORAN**. See *ALCORAN*.

CORAX, in ornithology, the trivial name of a species of *CRVOUS*.

CORANICH, among the Scotch and Irish, the custom of singing at funerals, anciently prevalent in those countries, and still practised in several parts. Of this custom Mr Pennant gives the following account. "I had not the fortune to be present at any in North Britain; but formerly assisted at one in the south of Ireland, where it was performed in the fullness of horror. The cries are called by the Irish the *uloghane* and *hullulu*; two words very expressive of the sound uttered on these occasions; and being of Celtic stock, etymologists would swear to be the origin of the *εὐλογησις* of the Greeks and *ulutus* of the Latins. Virgil is very fond of using the last whenever any of his females are distressed; as are others of the Roman poets, and generally on occasions similar to this. It was my fortune

Corallo-
dendron.||
Coranich.

to

Fig. 1.

2

Vesiculated.



3



Celliferous.



Tubular.



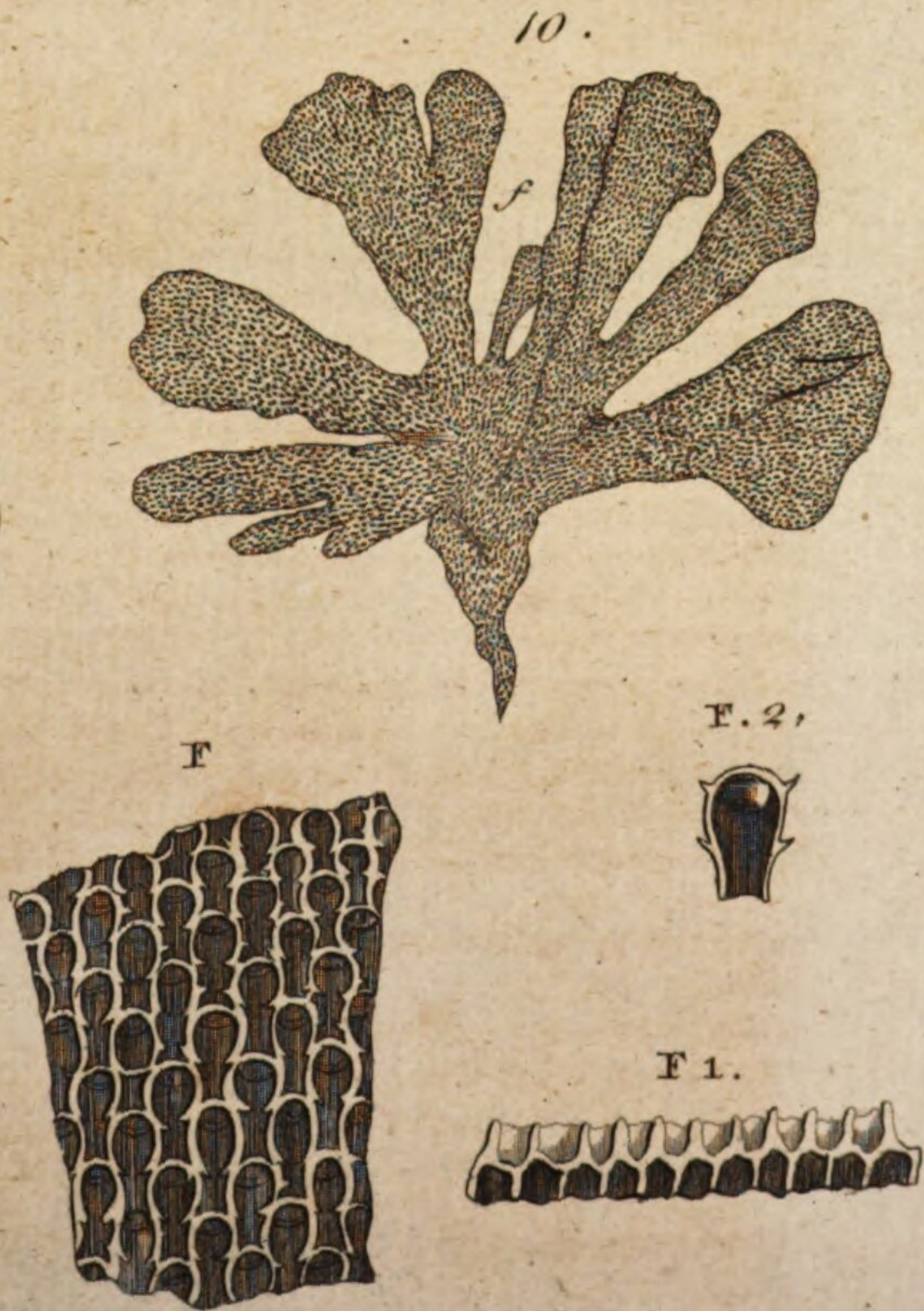
A. Bell Pin. Wals. Sculptor fecit.



Articulated.

Eschara.

Fig. 6.



A. Bell Pin. Wal. Sculptor fecit.

Coranich. to arrive at a certain town in Kerry at the time that a person of some distinction departed this life; my curiosity led me to the house, where the funeral seemed conducted in the purest classical form.

*Quodcumque aspiceret luctus, gemitusque sonabant,
Formaque non taciti funeris intus erat.*

In short, the *conclamatio* was set up by the friends in the same manner as Virgil describes that consequential of Dido's death;

*Lamentis, gemituque, & semineo ululatu
Tecta fr. munt.*

Immediately after this followed another ceremony, fully described by Camden in his account of the manners of the ancient Irish; the earnest expostulations and reproaches given to the deceased for quitting this world, where she enjoyed so many blessings, so good a husband, and such fine children. This custom is also of great antiquity, for Euryalus' mother makes the same address to her dead son.

*—Tunc illa senectæ
Sera mea requies? potuisti relinquere solam,
Cruentis?*

But when the time approached for carrying out the corps, the cry was redoubled,

Tremulis ululatibus æthera complent;

a numerous band of females waiting in the outer court to attend the hearse, and to pay in chorus the last tribute of their voices. The habit of this sorrowing train, and the neglect of their persons were admirably suited to the occasion; their robes were black and flowing, resembling the ancient Palla; their feet naked, their hair long and dishevelled: I might truly say,

*Ut qui conducti plorant in funera, dicunt
Et faciunt prope plura dolentibus exanimo.*

The corpse was carried slowly along the verge of a most beautiful lake, the ululatus was continued, and the whole procession ended among the venerable ruins of an old abbey."

CORBAN, in Jewish antiquity, were those offerings which had life, in opposition to the *minchab*, or those which had not. It is derived from the word *karab*, which signifies "to approach;" because the victims were brought to the door of the tabernacle. The corban were always looked upon as the most sacred offerings. The Jews are reproached with defeating, by means of the corban, the precept of the fifth commandment, which enjoins the respect due to parents. For when a child had no mind to relieve the wants of his father or mother, he would say to them, "It is a gift (*corban*) by whatsoever thou mightest be profited by me;" i. e. "I have devoted that to God which you ask of me, and it is no longer mine to give."

CORBAN is also a ceremony which the Mahometans perform at the foot of mount Arrarat in Arabia, near Mecca. It consists in killing a great number of sheep, and distributing them among the poor.

CORBEILS, in fortification, little baskets about a foot and a half high, eight inches wide at the bottom and twelve at the top; which being filled with earth, are frequently set one against another upon the parapet or elsewhere, leaving certain port-holes, from whence to fire upon the enemy under covert without being seen by them.

CORBEL, in architecture, the representation of a

basket, sometimes seen on the heads of caryatides. The word is also used from the vase, or tambour, of the Corinthian column; so called from its resemblance of a basket, or because it was first formed on the model of a basket.

CORBEL, or *Corbil*, is also used, in building, for a short piece of timber placed in a wall, with its end sticking out six or eight inches, as occasion serves, in manner of a shouldering-piece. The under part of the end thus sticking out is sometimes cut into the form of a bouldin; sometimes of an ogee, and sometimes of a face, &c. according to the workman's fancy; the upper side being plain and flat.

CORBEL is also used by some architects for a niche or hollow left in walls for images, figures or statues to stand in.

CORBET (Richard), bishop of Norwich, and an eminent poet, was born at Ewell in Surry, toward the latter end of the 16th century; and educated at Oxford, where he was esteemed one of the most celebrated wits of the university. Entering into holy orders, he became a popular preacher, and was made chaplain to king James I.: when, after several preferments in the church, he was, in 1629, made bishop of Oxford; and, in 1632, was translated to the see of Norwich. He was very hospitable, and always a generous encourager of public designs. He died in 1635. There have been several editions of his poems published under the title of *Poemata Stromata*.

CORBEY, a town of Picardy in France, with a famous abbey of Benedictine monks. It is seated on the river Somme, 10 miles east of Amiens, and 75 north of Paris. E. Long. 2. 35. N. Lat. 49. 55.

CORCELET, in natural history, that part of the fly-clas which is analogous in its situation to the breast in other animals. Many have called it the breast in these also, but improperly; because the breast of other animals is the place of the lungs and trachea, but these organs are in the fly-clas distributed through the whole body. The wings are affixed to this part of the fly-clas; and there are some distinctions of great consequence in regard to the arrangement and distribution of those animals into genera. Some flies have a double corcelet, or one divided into two parts; and this is the case of the fly produced from the formica leo, which therefore does not carry its only distinction in the figure of its antennæ. One pair of the legs of this fly are attached to the first or anterior corcelet, which is also capable of moving on the other.

The corcelets of some flies are also much more elevated than those of others; and in some this elevation is carried so far, that the head is forced by it to be bent downward, and the creature is nearly made hump backed by it. The great kind, and the *tipula*, furnish instances of this elevated and hump-backed corcelet.

A series of flies of two wings are known by a very particular armament which they carry on the corcelet, usually called their *breast*. This consists of two long slender, sharp-pointed prickles, which are immoveable in their insertions, and seem meant as offensive or defensive weapons; but in what manner they are used it is not easily to be determined.

All these flies are produced from long water-worms with

Corbel.

Corcelet.

Corcelet.
||
Corculum.
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with open and funnel-fashioned tails, or furnished with their aperture for respiration at the hinder extremity. There are three known species of this sort of fly, with armed corcelets, which differ much in size, but are all produced of worms of this kind. The largest of these flies are produced from the largest and longest worm, and are something longer than the bee. The smallest are produced of worms very small and slender, and are themselves extremely minute: and the third kind is of a middle size between these, and produced from a proportionably smaller worm than that of the first, and proportionably larger than that of the second species.

All these species have their wings but little distinguishable at their first production from the shell; they appear indeed only like two slender filaments laid across their bodies: but they quickly show, that in this state they were only very nicely folded together; and soon expand, and show their full extent and proportion.

When first produced from the shell, these flies are of a pale green colour. The under part of their belly in many continues green, but in the greater number it becomes of a pale dead brown. Some of them have the outside of their bodies of a deep brown, approaching to black, with lines of a dead brown between the commissures of the rings. The back of some others has only a blackish brown band, which runs straight down from the corcelet to the end of the body, the whole body beside being of a dead brown. The corcelet in these flies is brown, and the prickles are yellowish near their insertions, but nearly black at their points. They have three of the small glossy eyes disposed in the shape of a triangle on the back part of their head; and their reticular eyes are brown, and at some distance from one another.

CORCHORUS, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 37th order, *Columneae*. The corolla is pentapetalous; the calyx pentaphyllous and deciduous; and the capsule many-valved and many-celled.

There are eight species; of which the most remarkable is the olitorius, an annual, and a native of Asia, Africa, and America. It rises with a round, striated, upright, branched stalk, to near two feet, which is furnished with leaves differing in shape; some being oval, some cut off straight at their base, and others almost heart-shaped. They are of a deep green colour, and have a few teeth on the margins of their base, that end in bristly, reflexed, purplish filaments. The flowers come out at the sides of the branches opposite to the leaves. They stand singly on very short peduncles; are composed of five small yellow petals, and a great number of stamina surrounding an oblong germen, which becomes a long, rough, sharp-pointed capsule, opening in four parts, each filled with greenish angular seeds. This plant is sown by the Jews about Aleppo, and is therefore called *Jews mallow*. The leaves are a favourite salad among these people, and they boil and eat them with their meat.

CORCULUM, a diminutive from *cor*, "the heart," little heart; the essence of a seed, and principle of life of the future plant, attached to and contained within the lobes. It consists of two parts, termed by Linnaeus **PLUMULA** and **ROSTELLUM**. The former is the *radicula* of Grew and other naturalists. The

corculum is in fact the embryo of the future vegetable; and is attached by two trunks of vessels to the lobes at their union. The first of its two parts mounts upward, and becomes the trunk. The other strikes into the ground, and is the rudiment of the root. The lobes and heart of the seed are distinctly visible in the bean, and other seeds of that class, especially after remaining some time in water or earth.

The principle of life is seated either at the summit or base of the seed. From this circumstance are constructed the two first classes in Cæsalpinus' method, containing trees and shrubs only.

CORCYRA (anc. geog.), an Island in the Ionian Sea, opposite to Thesprotia, a district of Epirus, called *Scheria* and *Phæacia* by Homer. In Callimachus it is called *Drepane*; its most ancient name, according to the Scholiast, from the curvity of its figure. Famous for the shipwreck of Ulysses and the gardens of Alcinous. Now *Corfu*.

CORCYRA, a cognominal town of the island; formerly powerful, and capable of coping with mighty states; situated about the middle of the east side of the island, called *The Town of the Phæacians* by Homer. Now *Corfu* from the *Korvusa* of the middle age, the name of the citadel. It was a colony of Corinthians; *Corcyraei*, the people. E. Long. 19. 48. Lat. 39. 50.

CORCYRA Nigra, an island in the Adriatic, on the coast of Dalmatia (Pliny); called *Melena* by the Greeks to distinguish it from the island in the Ionian Sea. The epithet *Nigra* was added, from its woods of tall trees with which it is almost covered. Now *Gurzola*.

CORD, or **CHORD**, an assemblage of several threads of hemp, cabled or twisted together by means of a wheel. See **CORDAGE**. The word comes from the Greek *χορδή*, which properly signifies an intestine or gut, of which cords may be made. See **CHORD**.

Magical CORD, an instrument in great use among the Laplanders, and by them supposed to be endued with a number of virtues. It is a cord or rope with three knots tied in it. They use many magical rites and ceremonies in the tying of this cord; and, when thus prepared, it is supposed to have power over the winds; and they will sell, by means of it, a good wind, or at least the promise of one, to a ship. If they untie only one of these knots, a moderate gale succeeds; if two, it is much stronger; and if three, a storm is sure to follow.

CORD of Wood, a certain quantity of wood for burning, so called because formerly measured with a cord. The dimensions of a statute cord of wood are eight feet long, four feet high, and four feet broad.

CORD-WOOD, is new wood, and such as, when brought by water, comes on board a vessel, in opposition to that which is floated.

CORDAGE, a term used in general for all sorts of cord, whether small, middling, or great. See **ROPE**.

The naval cordage of the earlier ages was in all probability only thongs of leather. These primitive ropes were retained by the Caledonians in the third century. The nations to the north of the Baltic had them in the ninth or tenth centuries: and the inhabitants of the western isles of Scotland make use of them at present; cutting the skin of a seal, or the raw and salted hide of a cow, into long pieces, and fastening the plough to their horses with them, or even twisting them into strong ropes of 20 or 30 fathoms length.

Corcyra
||
Cordage.
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But

Cordage
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Cordelier
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But these, in the south of our island, and on the continent, were early superseded by the use of iron chains. The very maritime and commercial nation of the Veneti, that were so intimately connected with the Belgæ of Britain, used iron chains for their cables in the days of Cæsar. But in the more distant and refined countries of the south, both thongs and these had long given place to the use of vegetable threads, and the arts of combining them into strength. In this manner the Greeks appear to have used the common rushes of their country, and the Carthaginians the spartum or broom of Spain. And as all the cordage of the Romans was made of these materials at their last descent on our island, so the art of manufacturing them would be necessarily introduced with the Roman settlements among the Britons. Under the direction of Roman artists their thongs of leather would naturally be laid aside, and the junci, or rushes of the plains, worked up into cordage. And what remarkably coincides with this opinion is, that the remains of old cables and ropes are still distinguished among the British sailors by the name of *old junk*.

The nations of Roman Britain, and the tribes of Caledonia and Ireland, had inherited, from their earliest ancestors, many of the ruder arts of navigation. Their ships were large open boats, framed of light timbers ribbed with hurdles and lined with hides. These were furnished with masts and sails. The latter were formed of hides, as the tackle was of thongs. They were actually of hides, among the Veneti as late as the days of Cæsar; and they were never furled, but only bound to the mast. But these slight sea-boats, and their rude furniture, would soon be dismissed by the provincials for the more substantial vessels and more artificial sails of the Romans. The Roman sails, which were composed of flax in the days of Agricola, were afterwards made of hemp; and our own are therefore denominated *cannabis* or *canvar* by our mariners at present. And about the same period assuredly did the junk of the British cordage give way to the same materials; the use of hempen ropes upon land, and of hempen nets for hunting, being very common among the Romans in the first century.

CORDATED, an appellation frequently given by naturalists to things somewhat resembling a heart.

CORDED, in heraldry. A cross corded, some authors take for a cross wound or wrenched about with cords: others with more probability, take it for a cross made of two pieces of cord.

CORDELERAS, mountains of South America, otherwise called ANDES.

CORDELIER, a Franciscan, or religious of the order of St Francis. The Cordeliers are clothed in thick grey cloth, with a little cowl, a chaperon, and cloak, of the same; having a girdle of rope or cord tied with three knots: whence the name.—They are otherwise called *Minor Friars*, their original name. The denomination *Cordelier* is said to have been first given them in the war of St Louis against the infidels; wherein the Friars Minor having repulsed the barbarians, and that king having inquired their name, it was answered, they were people *cordeliers*, "tied with ropes." The Cordeliers are to a man professed Sco-

CORDEMOI (Géralde), a learned philosopher and historian, born at Paris, made himself known to M. Bossuet, who placed him about the dauphin in the quality of reader. He instructed that young prince with great assiduity; and in 1675 was received into the French academy. He wrote a general history of France during the first races of the French kings, in 2 vols; and six discourses on the distinction between Body and Soul, which were printed together in 1702 in quarto. He died in 1684. M. Cordemoi followed the principles of Descartes.

CORDIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 41st order, *Asperifolia*. The corolla is funnel shaped; the style dichotomous or divided into two threads, and each of these divided into other two.

There are five species, of which the principal are the myxa and sebestena. 1. The myxa, or Assyrian plum, grows wild in Assyria and Egypt, and also on the coast of Malabar. It rises to the height of a middling plum-tree; and its branches are furnished with oval, woolly leaves, standing without order. The flowers are produced in bunches; are white, and consist of one tubular petal, and a like calyx, nearly of an equal length, and both are cut into five parts at their brims. In their centre are five very small stamina, and one slender style crowned with an obtuse stigma. The germen is roundish, and swells to a plum of the same form, and about the size of a damson, of a dark brown colour, a sweet taste, and very glutinous. These plums were formerly kept in the shops; and were accounted good for obtunding acrimony, and thereby stopping defluations of rheum upon the lungs: but at present they are little used for these purposes. In some parts of Turkey they cultivate this tree in great abundance, not only for the sake of the fruit to eat, but to make birdlime of, which is a vast article of trade in a town called *Seid*.—2. The sebestena, or rough-leaved sebesten, grows naturally in both the Indies, and sends forth several shrubby stalks eight or ten feet high. The young leaves are serrated, but the full grown ones are not. They are of an oblong oval form, rough, of a deep green on the upper side, and stand alternately on short footstalks. The flowers terminate the branches in large clusters, are nearly of the shape and colour of those of the marvel of Peru, and make a most beautiful appearance. Each has five stamina and one bifid style. The plums are much of the shape of those of the myxa, and are eaten in the same manner. The fruit of this tree is less valuable than the wood, a small piece of which thrown upon a clear fire will perfume a room with a most agreeable odour.

CORDIAL, in medicine, whatever raises the spirits, and gives them a sudden strength and cheerfulness; as wine spirits, the effluvia of flowers, fruit, and many other substances.

CORDON, in fortification, a row of stones, made round on the outside, and set between the wall of the fortress which lies aslope, and the parapet which stands perpendicular, after such a manner, that this difference may not be offensive to the eye; whence the cordons serve only as an ornament, ranging round about the place.

Cordemoi
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Cordon.
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Corduba,
Cordous.

place being only used in fortifications of stone-work: for in those made with earth the void space is filled up with pointed stakes.

CORDUBA (anc. geog.) an illustrious city of Bætica, on the right or north side of the Bætis. Built by Marcellus, according to Strabo; but which Marcellus, is not so clear. It was the first colony sent into those parts by the Romans; and surnamed *Patricia*, because at first inhabited by principal men, both of the Romans and natives. It is mentioned by Sil. Italicus in the second Punic war; and hence it is probable the first Marcellus was the founder, and not the Marcellus engaged in the civil war between Cæsar and Pompey. It was famous for the birth of the two Senecas and of Lucan (Martial), and for its rich produce in oil (Statius, Martial). Still retaining its name a little altered. W. Long, 5. Lat. 37. 45.

CORDOUA, or CORDOVA, a city of Andalusia in Spain, situated on the river Guadalquivir, in a very extensive plain. The circumference is large; but it is not peopled in proportion to its extent, for there are a great many orchards and gardens within the walls. There are many superb structures, palaces, churches, and religious houses; particularly the cathedral, which is very magnificent: It was formerly a mosque when the Moors possessed the town; for which reason it still retains the name of *Mexquita*, which has the same meaning. The cathedral is very rich in plate; four of the silver candlesticks cost L. 850 a-piece. The revenue of the see amounts to L. 3500 *per annum*; but as the bishops cannot devise by will, all they die possessed of escheats to the crown. The square called the *Plaza Major* is surrounded with very fine houses, under which are piazzas. The trade is flourishing on account of the river; and consists of wine, silk, and Cordovan leather. In the neighbourhood of this place are a vast number of orange and lemon trees, which renders their fruits exceeding cheap. The best horses in Spain come from hence.

Cordova was the ancient *Corduba* mentioned in the preceding article. After the fall of the Roman empire, it was subjected to the dominion of the Goths; but in the eighth century it was raised by the Moorish princes to a state of splendor unequalled in any other part of the world. In the year 755, Abdoulrahman, only heir-male of the Ommiad line, having passed over from Africa at the head of a few desperate followers, found means to raise a rebellion in Spain; when, after a battle fought on the banks of the Guadalquivir, in which he overthrew the lieutenant of the Abassid Caliph of Damascus, he became king of all the Moorish possessions in the south of Spain, and in 759 fixed his royal residence at Cordova. Then began those flourishing ages of Arabian gallantry and magnificence which rendered the Moors of Spain superior to all their cotemporaries in arts and arms, and made Cordova one of the most splendid cities of the world. Agriculture and commerce prospered under the happy sway of this hero; and the face of the country was changed from a scene of desolation, which the long wars and harsh government of the viceroys had brought on, into a most populous flourishing state, exceeding in riches, number of inhabitants, activity, and industry, any prior or subsequent era of the Spanish history. He added new fortifications to the town, built himself a

magnificent palace with delicious gardens, laid causeways through the marshes, made excellent roads to open ready communication between the great towns, and in 786 began the great mosque, which he did not live to finish.

During the course of two centuries, this court continued to be the resort of all professors of the polite arts, and of such as valued themselves upon their military and knightly accomplishments; whilst the rest of Europe was buried in ignorance, debased by brutality of manners, or distracted by superstitious disputes. England, weakened by its heptarchy, was too inconsiderable even to be mentioned in the political history of the times. France, though it had a gleam of reputation under Charlemagne, was still a barbarous unpollished nation: and Italy was in utter confusion; the frequent revolutions and change of masters rendering it impossible for learning, or any thing good, to acquire a permanent footing in so unstable a soil: Greece, though still in possession of the arts and luxury of ancient Rome, had lost all vigour, and seemed absorbed in the most futile of all pursuits, *viz.* that of scholastic argument and religious subtilities.

The residence of the Ommiad Caliphs was long conspicuous for its supreme magnificence, and the crowds of learned men who are allured to it by the protection offered by its sovereigns, the beauty of the country, the wholesomeness of the climate, and the variety of pleasures that returned incessantly in one enchanting round.

Cordova became the centre of politeness, industry, and genius. Tilts and tournaments, with other costly shows, were long the darling pastimes of a wealthy happy people; and this was the only kingdom in the west where geometry, astronomy, and physics, were regularly studied and practised. Music was no less honoured; for we find, that in 844 a famous musician called *Ali Zeriab* came to settle at Cordova, and formed several pupils, who were supposed to equal the most celebrated performers that were ever known even in the East. That architecture was greatly encouraged, we need no other proof than the great and expensive fabrics undertaken and completed by many of these Spanish monarchs. Whatever faults may be justly condemned in their manner by the connoisseur, accustomed to the chaste noble graces of the Grecian proportions, certainly nobody can behold what remains of these Moorish edifices, without being strongly impressed with a high idea of the genius of the artists, as well as the grandeur of the prince who carried their plans into execution.

These sultans not only gave the most distinguished protection to arts and sciences, and to the persons learned in any of them, but were themselves eminently versed in various branches of knowledge. Alkehem II. collected so immense a quantity of manuscripts that before the end of his reign the royal library contained no less than 600,000 volumes, of which the very catalogue filled 40 huge folios. The university of Cordova was founded by him, and under such favourable auspices rose to the highest pitch of celebrity.

Abdoulrahman was succeeded by his son Hissam, whose passion for glory and architecture was not in the least inferior to that of his father. He put the finishing hand to the mosque, which the plunder of the southern

Cordoua. Southern provinces of France enabled him to complete in the course of a few years. The bridge over the Guadalquivir was a work of Hissem's after his own plan.

Alkahem succeeded Hissem.

Abdoulrahman II. was also passionately fond of building. He was the first that brought the supplies of water to Cordova by means of leaden pipes laid upon aqueducts of stone. The quantity was so considerable, that every part of the palace, the mosques, baths, squares, and public edifices, had all of them their fountains constantly playing. A great many of these works still subsist. He paved the whole city, and erected several mosques.

After him reigned Mahomet Almundar, Abdallah, and Abdoulrahman III. who surpassed all his predecessors in splendor, riches, and expence. His subjects vied with each other in profusion and magnificence. This monarch was succeeded by his son Alkahem II., who left a minor to succeed him, and the kingdom to be governed by the famous visir Mahomet Abenamir, surnamed *Almanzor* or "the defender," from his great victories and wise conduct. His descendants inherited from him the visirship, and a power as absolute as if they had been caliphs, until the weakness of the sovereigns encouraged, and the insolence of the ministers provoked the grandees to disturb the state with their jealousies and dissensions. These broils occasioned such a series of civil wars and anarchy, as overthrew the throne of Cordova, and destroyed the whole race of Abdoulrahman. Thus the glorious edifice, founded by the valour and prudence of that conqueror, and cemented by similar virtues in many of his successors, sunk into nothing as soon as the sceptre devolved upon weak enervated princes, whose indolence and incapacity transferred the management of every thing to a visir. Many petty kingdoms sprang up out of the ruins of this mighty empire; and the Christians soon found opportunities of destroying by separate attacks, that tremendous power, which when united had proved an overmatch for their utmost force.

New CORDUA, a considerable town of South America, in the province of Tucuman, with a bishop's see, 175 miles from St. Jago. W. Long. 62. 5. S. Lat. 32. 10.

CORDUAN, a famous pharos or light-house of France, in Guienne, at the mouth of the river Girond. The architecture is extremely fine; and is placed there to hinder vessels from running on the sand-banks at the mouth of the river. W. Long. 1. 9. N. Lat. 45. 36.

CORDUS (Valerius) a learned botanist, was the son of Erius Cordus, a physician and poet of Germany. Having learned the languages, he applied himself to the study of botany, in the prosecution of which he examined the mountains of Germany, and travelled into Italy; but being wounded in the leg by the kick of a horse, died at Rome in 1554. He wrote *Remarks on Dioscorides*, and other works.

CORDWAINERS, or **CORDINERS**, the term whereby the statutes denominate shoemakers. The word is formed from the French *cordonnier*, which Menage derives from *cordouan*, a kind of leather brought from Cordoua, whereof they formerly made the upper leather of their shoes.

Others derive it from *corde*, "rope," because anciently shoes were made of cords; as they still are in some parts of Spain, under the name of *alpargates*. But the former etymology is better warranted: for, in effect, the French workmen who prepare the corduas are still called *cordouanniers*.

In Paris they have two pious societies under the titles of *freres cordonniers*, "brothers shoemakers," established by authority towards the middle of the 17th century; the one under the protection of St. Crispin, the other of St. Crispianus, two saints who had formerly honoured the profession. They live in community, and under fixed statutes and officers; by which they are directed both in their spiritual and secular concerns. The produce of their shoes goes into a common stock, to furnish necessities for their support; the rest to be distributed among the poor.

COREA, a peninsula lying to the north-east of China, between 99 and 109 degrees of E. Long. and between 32 and 46 of N. Lat. It is divided into 8 provinces, which contain 40 cities of the 1st rank, 51 of the 2d, and 70 of the 3d. The capital of the whole is Hanching, where the king resides. The Jesuits say, the people are well made, of a sweet and tractable disposition, and fond of learning music and dancing, and in general resemble the Chinese. Their houses are mean, being covered with thatch: and they have no beds, but lie on the floor. They have little silk, and therefore make use of linen-cloth in its room. Their trade consists in white paper, pencils, gingseng, gold, silver, iron, yellow varnish, fowls whose tails are three feet long, horses no more than three feet in height, sable-skins, castor, and mineral salt. In general it is a fertile country, tho' abounding in mountains. It is tributary to China.

Mr Grosier relates an observation concerning the natural history of Corea, which, in his opinion, furnishes a new proof of the revolutions which the surface of our globe has undergone. An ancient Chinese book asserts, that the city where Kipe, the king of Corea, established his court, was built in a place which forms at present a part of the territories of *Yong-ping-fou*, a city of the first class in the province of Petcheli. "If this (says he) be admitted as a fact, we may from thence conclude that these territories formerly belonged to Corea; and that the gulf of Lax-tong which at present separates this kingdom from the province of Petcheli, did not then exist, and that it has been formed since; for it is not probable that a sovereign would have fixed his residence without the boundaries of this kingdom, or in a place where he was separated from it by a wide and extensive sea. This conjecture is confirmed by certain facts admitted by the Chinese. Thus when Yu, surnamed the Great, undertook to drain and carry off the waters which had inundated the low grounds of several provinces, he began by the river Hoang-ho, the overflowing of which caused the greatest devastation. He went in search of its source to the bosom of Tartary, from whence he directed its course across the provinces of Chan-si, Chen-si, Honan and Petcheli. Towards its mouth, in order to weaken the rapidity of its waters, he divided them into nine channels, through which he caused this river discharge itself into the eastern sea.

Corea.

near the mountain of *Kie-che-chan*, which then formed a promontory. Since that time to the present, that is about 3950 years, the river *Hoang-ho* has departed so much from its ancient course, that its mouth at present is about six degrees farther south. We must also remark, that the mountain *Kie-che-chan*, which was formerly united to the main land of *Yong-pong-fou*, stands at present in the sea at the distance of about 50 leagues to the south of that city. If the sea has been able to cover with its waters that extent of territory which at present forms part of the gulph of *Lea-tong*, may we not be allowed to suppose that like inundations may have formed successively the whole of that gulph, the ancient existence of which seems so ill to agree with the residence of the kings of Corea in the territories of *Yong-pong-fou*? It is true, the Chinese history makes no mention of so considerable a physical revolution; but it is equally silent with regard to the 500 *lys* (50 leagues) extent of ground which is at present covered by the sea beyond the mountains of *Kie-che-chan*. Besides, of all the changes which the surface of our globe experiences, those only are mentioned in history which happen suddenly, and which consequently make more impression on the minds of men.

Corea chiefly produces wheat, rice, and ginseng, with a kind of palm tree which yields a gum capable of producing a yellow varnish little inferior to gilding. Hence also are exported castor and sable skins; also gold, silver, iron, and fossil salt; a kind of small brushes for painting, made of the hair of a wolf's tail, are likewise manufactured here, which are exported to China and highly esteemed there. The sea-coasts abound in fish, and great numbers of whales are found there every year towards the north-east. Several of these, it is said, have in their bodies the harpoons of the French and Dutch, from whom they have escaped in the northern extremities of Europe; which seems to indicate a passage from the European into the Asiatic seas round the continents of Europe and Asia.

A considerable quantity of the paper of Corea is annually imported into China; indeed the tribute due to the emperor is partly paid with it every year. It is made of cotton, and is as strong as cloth, being written upon with a small hair-brush or pencil; but must be done over with alum-water before it can be written upon in the European manner. It is not purchased by the Chinese for writing, but for filling up the squares of their sash-windows; because, when oiled, it resists the wind and rain better than that of China. It is used likewise as wrapping paper; and is serviceable to the tailors, who rub it between their hands until it becomes as soft and flexible as the finest cotton cloth, instead of which it is often employed in lining clothes. It has also this singular property, that if it be too thick for the purpose intended, it may be easily split into two or three leaves, each of which are even stronger than the best paper of China.

The Coreans are well made, ingenious, brave, and tractable; are fond of dancing, and show great docility in acquiring the sciences, to which they apply with great ardour, and honour in a particular manner. The northern Coreans are larger sized and more robust than those of the south; have a taste for arms,

and become excellent soldiers. Their arms are cross-bows and long sabres. Men of learning are distinguished from other classes of people by two plumes of feathers in their caps; and when merchants present the Coreans with any books for sale, they dress themselves in the richest attire, and burn perfumes before they treat concerning the price.

The Coreans mourn three years, as in China, for a father or mother: but the time of mourning for a brother is confined to three months. Their dead are not interred until three years after their decease; and when the ceremony of interment is performed, they place around the tomb the clothes, chariot, and horses of the deceased, with whatever else he showed the greatest fondness for while alive; all which they leave to be carried off by the assistants. Their houses, as in China, consist only of one story, and are very ill built; in the country being composed of earth, and in cities generally of brick, but all thatched with straw: the walls of their cities are constructed after the Chinese manner, with square turrets, battlements, and arched gates. Their writing, dress, religious ceremonies, and creed, as well as the greater part of their customs, are borrowed from the Chinese. Their women, however, are less confined, and have the liberty of appearing in public with the other sex, for which they are often ridiculed by their neighbours. They differ from the Chinese also in their ceremonies of marriage, and in the manner of contracting it; the parties in this country taking the liberty to choose for themselves, without consulting the inclinations of their parents, or suffering them to throw any obstacles in their way.

COREIA, in antiquity, a festival in honour of Proserpine, named *Core*, *Koen*, which in the Molossian dialect signifies a beautiful woman.

CORELLI (Arcangelo), the famous Italian musician and composer, a native of Fusignano, in the territory of Bologna, was born in 1653. He entertained an early propensity to the violin; and as he advanced in years, laboured incessantly in the practice of that instrument. About the year 1672, his curiosity led him to visit Paris, probably with a view to attend the improvements which were making in music under the influence of cardinal Mazarine, and in consequence of the establishment of a royal academy; but notwithstanding the character which he brought with him he was driven back to Rome by Lully, whose jealous temper could not brook so formidable a rival as this illustrious Italian. In the year 1680 he visited Germany, and met with a reception suitable to his merit from most of the German princes, particularly the elector of Bavaria; in whose service he was retained, and continued for some time. After about five years stay abroad, he returned again to Rome, and there pursued his studies with great assiduity.

The proficiency of Corelli on his favourite instrument the violin was so great, that the fame of it reached throughout Europe. The style of his performance was learned, elegant, and pathetic; and his tone firm and even. Mr Geminiani, who was well acquainted with, and had studied it, was used to resemble it to a sweet trumpet. A person who had heard him perform says, that, whilst he was playing on the violin, it was usual for his countenance to be distorted, his eyes

Corea

Corelli

Corelli. eyes to become as red as fire, and his eye-balls to roll as in an agony.

Corelli was highly favoured by that great patron of poetry and music, cardinal Ottoboni. Crescembini says, that he regulated the musical academy held at the palace of his eminence every Monday afternoon. Here it was that Mr Handel became acquainted with him; and in this academy a serenata of Mr Handel, entitled, *Il Trionfo del Tempo*, was performed, the overture to which was in a style so new and singular, that Corelli was confounded in his first attempt to play it.

During the residence of Corelli at Rome, besides those of his own country, many persons were ambitious of becoming his disciples, and learning the practice on the violin from the greatest master of that instrument the world had then heard of. Of these it is said the late Lord Edgumbe was one: and that the fine mezzotinto print of Corelli by Smith was scraped from a picture painted by Mr Hugh Howard at Rome for that nobleman.

Corelli died at Rome in 1713; and was buried in the church of the Rotunda, otherwise called the Pantheon, in the first chapel, on the left hand of the entrance. Over the place of his interment is a sepulchral monument to his honour, with a marble bust thereon, erected at the expence of Philip-William, count palatine of the Rhine, under the care and direction of cardinal Ottoboni.

For many years after his decease, this excellent musician was commemorated by a solemn musical performance in the Pantheon, on the anniversary of his death. In the year 1730 an eminent master, now living, was present at that solemnity, who relates that at it the third and eighth of his concertos were performed by a numerous band, among whom were many who had been the pupils of the author. He adds, that these two pieces were performed in a slow, distinct, and firm manner, without graces, and just as they are wrote; and from hence concludes, that this was the manner in which they were played by the author himself.

He died possessed of about 6000 l. Sterling. He was a passionate admirer of pictures, and lived in an uninterrupted friendship with Carlo Cignani and Carlo Marat: these two eminent painters were rivals for his favour: and for a series of years presented him at times with pictures, as well of other masters as of their own painting. The consequence was, that Corelli became possessed of a large and valuable collection of original paintings; all which, together with the sum above mentioned, he bequeathed to his dear friend and patron cardinal Ottoboni, who reserving the pictures to himself, generously distributed the rest of the effects among the relations of the testator.

Corelli is said to have been remarkable for the mildness of his temper and the modesty of his deportment: nevertheless, he was not insensible of the respect due to his skill and exquisite performance. Cibber, in the *Apology for his Life*, p. 340. relates, that when he was playing a solo at Cardinal Ottoboni's, he discovered the cardinal and another person engaged in discourse, upon which he laid down his instrument; and being asked the reason, gave for answer, that he feared the music interrupted their conversation.

The compositions of Corelli are celebrated for the harmony resulting from the union of all the parts; but the fineness of the airs is another distinguishing characteristic of them: the allemand in the 10th solo is as remarkable for spirit and force, as that in the 11th is for its enchanting delicacy: his jigs are in a style peculiarly his own: and that in the 5th solo was never equalled. In the gavot movements in the 2d and 4th operas, the melody is distributed with great judgment among the several parts. In his minuets alone he seems to fail; Bononcini, Mr Handel, and Giuseppe Martini, have excelled him in this kind of airs.

It is said there is in every nation a style both in speaking and writing, which never becomes obsolete; a certain mode of phraseology, so consonant and congenial to the analogy and principles of its respective language, as to remain settled and unaltered. This, but with much greater latitude, may be said of music; and accordingly it may be observed of the compositions of Corelli, not only that they are equally intelligible to the learned and unlearned, but that the impressions made by them have been found to be as durable in general. His music is the language of nature; and, for a series of years, all that heard it became sensible of its effects: of this there cannot be a stronger proof than that, amidst all the innovations which the love of change had introduced, it continued to be performed, and was heard with delight in churches, in theatres, at public solemnities and festivities, in all the cities of Europe for near 40 years. Men remembered, and would refer to passages in it as to a classic author; and even at this day, the masters of the science do not hesitate to pronounce of the compositions of Corelli, that, of fine harmony and elegant modulation, they are the most perfect exemplars.

COREOPSIS, TICKSEEDED SUNFLOWER: A genus of the polygamia frustanea order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is paleaceous; the pappus two-horned: the calyx erect and polyphyllous, surrounded with patent radiated leaflets at the base. There are 11 species, most of them herbaceous perennials. They are very flowery, and rise from three to eight feet stature; terminated by clusters of compound radiated flowers of a yellow colour. They have all perennial fibrous roots, and annual stalks, which rise in the spring, flower from July to October, and decay to the root in November. The flowers are all shaped like sun-flowers, but smaller, and are very ornamental. They are easily propagated by slipping, or dividing the roots in autumn, when the stalks decay; planting the slips at once where they are to remain; after which they will require no farther trouble than to be kept free from weeds, and have the decayed stalks cut annually in autumn.

CORFE-CASTLE, a borough-town in Dorsetshire in England. It takes its name from a strong castle, belonging to the crown, that stood there, but is now ruined. It sends two members to parliament. W. Long. 2. 8. N. Lat. 50. 33.

CORFU, an island in the Ionian sea, at the mouth of the gulph of Venice, formerly called *Corcyra* and *Pheacia*, famous for the gardens of Alcinous. It be-

Corfu.

longs at present to the Venetians; and forms the bulwark of Christendom against the Turks, who have often attempted to reduce it, but without success. It is well fortified, and has 50 castles; and the number of the inhabitants is said to be about 50,000. The inhabitants are of the Greek church; and the Venetians send them a governor and magistrates, which are changed every two years. The soil is very fruitful, and produces a great deal of wine, olives, and several other fruits, particularly figs, which are exceedingly good. The chief city is likewise called *Corfu*; see the following article.

CORFU, a city of the island of that name, belonging to the Venetians. It is a large place, strongly fortified and defended by a garrison of about 10,000 men; which, however, in the opinion of a late traveller, do not appear adequate to the extent of the fortifications. A number of very excellent brass and iron cannon are mounted on the different forts, which, he observes, are so divided, that it would take treble the number of their garrison to defend them. However, the republic of Venice is generally at peace with the different European nations, and the ancient power of the Turks being much decayed, they have little to apprehend; tho' to prevent any sudden surprise, the Venetians keep a formidable squadron in the harbour of Corfu, and the works have been much improved by Major General Paterson.—In the late war they had with the Turks this town was attacked by an army of 80,000 men, and attempted to be stormed several times by the enemy; but the garrison, which consisted of 12,000 men under the command of Count Schulenburg, made so brave and gallant a defence, that they always repulsed them, and obliged them to raise the siege, and abandon the place with considerable loss. For this piece of service the republic has caused a magnificent statue to be erected in memory of the Count, with an elegant Latin inscription, setting forth the many eminent services of his military achievements. The circumference of the city is about four miles; the number of inhabitants on the whole island are computed at about 50,000, the greatest part of whom are Greeks.

This island is the residence of the governor-general, whose jurisdiction extends over all the island subject to the republic of Venice, in the Levant seas, and is considered as one of the greatest honours they can confer on a subject. He is always a nobleman of the first rank, and has his appointment for three years only, in which time he makes a tolerable addition to his fortune, and on his return to Venice is generally advanced to the honours of the senate. In the city are many handsome Greek churches, the principal of which is that of St Speridione, or the cathedral; It is embellished with some excellent paintings, and most superbly ornamented. The body of the saint from whom it was named, is preserved entire in a rich shrine within the church. The Greeks are most of them such fanatics as to be continually offering their devotions at this shrine, believing that through the intercession of the saint they will obtain all their wants; and that by offerings of money their sins will be forgiven them; by which means the church has amassed an immense treasure. The relic of the saint is deposited in a silver coffin, richly decorated with precious stones. It is in an amazing state of preservation; he having died in

the island of Cyprus upwards of 700 years ago; and after remaining 400 years there, was transported to this place. Besides the grand fleet, the Venetians have another of galleys, that are manned by convicts whose crimes are not of such a nature as to merit death. The chief diversions of this place in the winter are operas; they have always a company of comedians for the season from Naples. In the summer they pass their time in walking upon the ramparts: few except the governor and great officers of state are permitted to keep carriages. The Corfu people perfectly resemble the Zanteots in their manners (see ZANTE); tho' it must be observed in praise of the former, that assassinations are uncommon among them, their laws being too severe to permit such practices with impunity. E. Long. 19. 48. N. Lat. 39. 50.

CORIA, a town of Spain, in the kingdom of Leon and province of Estremadura, towards the confines of Portugal, with a bishop's see. It is seated on a little river called *Alagon*, in a very fertile plain. There is nothing remarkable but the cathedral church, except at a little distance a river without a bridge, and a bridge without a river. This was caused by an earthquake, which turned the river another way. W. Long. 6. 46. N. Lat. 39. 59.

CORIANDRUM, CORIANDER: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The corolla is radiated; the petals inflexed-emarginated; the involucre universal and monophyllous; the partial involucre halved; the fruit spherical. There are only two species, both of them herbaceous annuals, the leaves of which are useful for the kitchen, and the seeds for medicine. Both species have divided small leaves, somewhat resembling parsley: but there is but one species generally cultivated; namely, the *sativum*. This hath a small fibrous white root, crowned by many parted leaves, having broadish segments; and in the centre an upright, round, branchy stalk, two feet high, having all the branches terminated by umbels of flowers, which are succeeded by globular fruit. It is propagated by seed, which when a good crop is wanted, ought to be sown in March, either in drills a foot asunder, or by broadcast, and then raked in. When the plants are an inch or two high, they should be hoed to six or eight inches distance. The seeds when fresh have a strong disagreeable smell, which improves by drying, and becomes sufficiently grateful: they are recommended as carminative and stomachic. They are also much used by the brewers both in England and Holland, to give a flavour to their strongest beer. The ancients had a notion, that the juice of coriander would deprive people of their senses, and even of life. The leaves are sometimes used for culinary purposes in soups, and as an ingredient in salads; but as they are of a foetid smell, they are held in no great esteem in this country.

CORIARIA, the *Tanner's* or *myrtle-leaved* SUMACH: A genus of the decandria order, belonging to the dioecia class of plants; and in the natural method ranking under the 54th order *Miscellanæ*. The male calyx is pentaphyllous; the corolla pentapetalous, very like the calyx, and united with it; the antheræ bipartite. The female calyx is pentaphyllous; the corolla like that of the male; the styles five, seeds five, covered

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Coridor ed with a like number of succulent petals, forming altogether the resemblance of a berry. There are two species, the *myrtifolia* and the *foemina*. They are both natives of the south of France, but the former is most commonly cultivated in this country. It is a pretty ornamental plant, with a shrubby pithy brown stem, closely branching from the bottom, and forms a bushy head three or four feet over, thickly garnished with oblong, pointed, bright green leaves, having small spikes of whitish flowers at the ends of the branches. It is easily propagated by suckers from the root, in which it affords plentifully, and may be taken off with fibres every autumn or winter. It may be also propagated by layers in autumn, which will take root in a year. It is much used in the south of France, where it naturally grows, for tanning of leather, whence its name of *tanner's sumach*. It also dyes a beautiful black colour. The berries are dangerous, and when eaten generally occasion vertigoes and epilepsies. The old leaves have the same effect upon cattle that eat them, but the young leaves are innocent.

CORIDOR, or **CORRIDOR**, in fortification, a road or way along the edge of the ditch, without-side; encompassing the whole fortification. The word comes from the Italian *coridore*, or the Spanish *coridor*.

It is also called the *covert-way*; because covered with a glacis, or esplanade, serving it as a parapet. The coridor is about 20 yards broad.

CORIDOR is also used in architecture, for a gallery or long aisle around a building, leading to several chambers at a distance from each other, sometimes wholly inclosed, and sometimes open on one side.

CORINNA, a Grecian lady, celebrated for her beauty and poetic talents, was born at Theffu, a city of Boeotia, and was the disciple of Myrtis another Grecian lady. Her verses were so esteemed by the Greeks, that they gave her the name of the *lyric muse*. She lived in the time of Pindar, about 495 years before Christ; and is said to have gained the prize of lyric poetry from that poet: but Pausanias observes that her beauty made the judges partial.

CORINTH, a celebrated city of antiquity, for some time the most illustrious of all the Greek cities. It is said to have been founded 1514 years before Christ, by Sisyphus the son of Molus, and grandfather of Ulysses. Various reasons are given for its name, but most authors derive it from *Corinthus* the son of Pelops. It was situated in the south part of the Isthmus which joins the Peloponnesus, now the Morea, to the continent. It consisted of a citadel built upon an eminence, and thence named *Acrocorinthus*; besides which it had two maritime towns subject to it, named *Lecheum* and *Cenchrea*. The whole state extended scarce half a degree in length or breadth; but so advantageously were the above-mentioned ports situated, that they might have gained the Corinthians a superiority, if not a command, over all Greece, had not their advantageous situation inclined them to commerce rather than war. For their citadel was almost impregnable; and commanding both the Ionian and Aegean seas, they could easily cut off all communication from one half of Greece with the other; for which reason this city was called one of the fetters of Greece.

But as the genius of the Corinthians led them to commerce rather than martial exploits, their city became the finest in all Greece. It was adorned with the most sumptuous buildings, as temples, palaces, theatres, porticoes, &c. all of them enriched with a beautiful kind of columns, which from the city were called *Corinthian*. But though the Corinthians seldom or never engaged in a war with a view of enlarging, but rather of defending their little state, they did not forget to cultivate a good discipline both in time of peace and of war. Hence many brave and experienced generals have been furnished by Corinth to the other Grecian cities, and it was not uncommon for the latter to prefer a Corinthian general to any of their own.

This city continued to preserve its liberty till the year before Christ 146, when it was pillaged and burnt by the Romans. It was at that time the strongest place in the world: but the inhabitants were so disheartened by a preceding defeat, and the death of their general, that they had not presence of mind enough even to shut their gates. The Roman consul Mummius, was so much surprised at this, that at first he could scarce believe it; but afterwards fearing an ambuscade, he advanced with all possible caution. As he met with no resistance, his soldiers had nothing to do but destroy the few inhabitants that had not fled, and plunder the city. Such of the men as had staid, were all put to the sword, and the women were sold for slaves. After this the city was ransacked by the greedy soldiers, and the spoils of it are said to have been immense. There were more vessels of all sorts of metal, more fine pictures, and statues done by the greatest masters, in Corinth, than in any other city in the world. All the princes of Europe and Asia who had any taste in painting and sculpture, furnished themselves here with their richest moveables: here were cast the finest statues for temples and palaces, and all the liberal arts brought to their greatest perfection. Many inestimable pieces of the most famous painters and statuaries fell into the hands of the ignorant soldiers, who either destroyed them, or parted with them for a trifle. Polybius the historian was an eye-witness to this barbarism of the Romans. He had the mortification to see two of them playing at dice on a famous picture of Aristides, which was accounted one of the wonders of the world. The piece was a Bacchus, exquisitely done, that it was proverbially said of any extraordinary performance, "It is as well done as the *Bacchus of Aristides*." This masterly piece of painting, however, the soldiers willingly exchanged for a more convenient table to play upon: but when the spoils of Corinth were put up to sale, Attalus king of Pergamus offered for it 600,000 sesterces, near 5000 l. of our money. Mummius was surprised at such a high price offered for a picture, and imagined there must be some magical virtue in it. He therefore interposed his authority, and carried it to Rome, notwithstanding the complaints of Attalus. Here this famous picture was lodged in the temple of Ceres, where it was at last destroyed by fire, together with the temple. Another extraordinary instance of the stupidity of Mummius is, that when the pictures were put on board the transports, he told the masters of the vessels very seriously, that if any of the things were either

Corinth.

Corinth. either lost or spoiled, he would oblige them to find others at their own cost; as if any other pieces could have supplied the loss of those inestimable originals, done by the greatest masters in Greece. When the city was thoroughly pillaged, fire was set to all the corners of it at the same time. The flames grew more violent as they drew near the centre, and at last uniting there made one prodigious conflagration. At this time the famous metalline mixture is said to have been made, which could never afterwards be imitated by art. The gold, silver, and brass, which the Corinthians had concealed, were melted, and ran down the streets in streams, and when the flames were extinguished, a new metal was found, composed of several different ones, and greatly esteemed in after ages.

The town lay desolate until Julius Cæsar settled there a Roman colony; when, in moving the rubbish and digging, many vases were found of brass or earth finely embossed. The price given for these curiosities excited industry in the new inhabitants. They left no burying-place unexamined; and Rome, it is said, was filled with the furniture of the sepulchres of Corinth.

Strabo was at Corinth soon after its restoration by the Romans. He describes the site as follows. "A lofty mountain, in perpendicular height as much as three stadia and a half (near half a mile), the ascent 30 stadia ($3\frac{1}{4}$ miles), ends in a pointed summit called *Acrocorinthus*. Of this the portion to the north is the most steep; beneath which lies the city on a level area, at the foot of the *Acrocorinthus*. The circuit of the city alone has been 40 stadia (5 miles), and as much of it as was unsheltered by the mountain has been walled about. Within the inclosure was comprehended also the *Acrocorinthus*, where the mountain was capable of receiving a wall; and as we ascended, the vestiges were plain; so that the whole circumference exceeded 85 stadia (near 11 miles). On the other sides, the mountain is less steep, but rises very high, and is visible all around. Upon the summit is a small temple of Venus; and below it the spring *Pirene*, which does not overflow, but is always full of pellucid and potable water. They say it unites with some other hidden veins, and forms the spring at the mountain foot, running into the city, and affording a sufficient supply for the use of the inhabitants. In the city is plenty of wells, and in the *Acrocorinthus*, as they say, for we did not see any. There they relate the winged horse *Pegasus* was taken as he was drinking, by *Bellerophon*. Below *Pirene* is the *Sisypheum*, some temple or palace of white stone, the remains not inconsiderable. From the summit is beheld to the north *Parnassus* and *Helicon*, lofty mountains covered with snow; and below both, to the west, the *Crissean* gulph bounded by *Phocis*, by *Bœotia* and the *Megaris*, and by *Corinthia* and *Sicyonia* opposite to *Phocis*. Beyond all these are the mountains called the *Oneian*, stretching as far as *Bœotia* and *Cithæron* from the *Scironian* rocks on the road to *Attica*." Strabo saw likewise *Cleon* from thence. *Cenchreæ* was then a village. *Lechæum* had some inhabitants.

New Corinth had flourished 217 years when it was visited by *Pausanias*. It had then a few antiquities, many temples and statues, especially about the *Agora* or market-place, and several baths. The emperor *Hadrian* introduced water from a famous spring at

Stymphalus in *Arcadia*; and it had various fountains alike copious and ornamental. The stream of one issued from a dolphin, on which was a brazen *Neptune*; of another, from the hoof of *Pegasus*, on whom *Bellerophon* was mounted. On the right hand, coming along the road leading from the market-place toward *Sicyon*, was the *Odeum* and the theatre, by which was a temple of *Minerva*. The old *Gymnasium* was at a distance. Going from the market-place toward *Lechæum* was a gate, on which were placed *Phaeton* and the *Sun* in gilded chariots. *Pirene* entered a fountain of white marble, from which the current passed in an open channel. They supposed the metal called *Corinthian brass* to have been immersed while red hot in this water. On the way up to the *Acrocorinthus* were temples, statues, and altars; and the gate next *Tenea*, all viage with a temple of *Apollo* sixty stadia, or seven miles and a half distant, on the road to *Mycenæ*. At *Lechæum* was a temple and a brazen image of *Neptune*. At *Cenchreæ* were temples; and by the way, from the city a grove of cypress trees, sepulchres, and monuments. Opposite was the *Bath of Helen*, water tepid and salt, flowing plentifully from a rock into the sea. *Mummius* had ruined the theatre of Corinth, and the munificence of the great Athenian *Atticus* *Herodes* was displayed in an edifice with a roof inferior to few of the most celebrated structures in Greece.

The Roman colony was reserved to suffer the same calamity as the Greek city, and from a conqueror more terrible than *Mummius*, *Alaric* the savage destroyer of Athens and universal Greece. In a country harassed with frequent wars, as the *Peloponnesus* has since been, the *Acrocorinthus* was a post too consequential to be neglected. It was besieged and taken, in 1459 by *Mahomet II.*; the despots or lords of the *Morea*, brothers of the Greek emperor who was killed in defending *Constantinople*, refusing payment of the arrears of the tribute, which had been imposed by *Sultan Morat* in 1447. The country became subject to the Turks, except such maritime places as were in the possession of the *Venetians*; and many of the principal inhabitants were carried away to *Constantinople*. Corinth, with the *Morea*, was yielded to the republic at the conclusion of the war in 1698, and again by it to the Turks in 1715.

Corinth retains its old name, and is of considerable extent, standing on high ground, beneath the *Acrocorinthus*, with an easy descent toward the gulph of *Lepanto*; the houses scattered or in parcels, except in the *Bazar* or market-place. *Cypresses*, among which tower the domes of mosques, with corn fields, and gardens of lemon and orange-trees, are interspersed. The air is reputed bad in summer, and in autumn exceedingly unhealthy. *Wheler* relates, that from the top of the *Acrocorinthus* or Citadel, he enjoyed one of the most agreeable prospects which this world can afford. He guessed the walls to be about two miles in compass, inclosing mosques, with houses and churches mostly in ruins. An hour was consumed in going up on horseback. It was a mile to the foot of the hill; and from thence the way was very steep, with many traverses. The families living below were much infested by corsairs, and on every alarm flocked up to the castle.

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According to Dr Chandler, Corinth has preserved but few monuments of its Greek or Roman citizens. The chief remains, he informs us, are at the south-west corner of the town, and above the bazar or market; 11 columns supporting their architraves, of the Doric order, fluted, and wanting in height near half the common proportion to the diameter. Within them, toward the western end, is one taller, though not entire, which it is likely contributed to sustain the roof. They have been found to be stone, not marble; and appear brown, perhaps from a crust formed on the outside. The ruin he judges to be of very remote antiquity, and a portion of a fabric erected not only before the Greek city was destroyed, but before the Doric order had attained to maturity. He suspects it to have been the Sisyphæum mentioned by Strabo. North of the Bazar stands a large mass of Brick-work, a remnant, it may be conjectured, of a bath or of the Gymnasium.

The inhabitants are most of them Christians of the Greek church, who are allowed liberty of conscience by the Turks. E. Long. 28. 1; N. Lat. 38. 14.

CORINTH, (the isthmus of), in the Morea, is a neck of land which joins the Morea to Greece, and reaches from the gulph of Lepanto to that of Egina. Julius Cæsar, Caligula, and Nero, attempt'ed to cut a channel through it, but in vain; and they therefore afterwards built a wall across it, which they called *Hexamilium*, because it was six miles in length. This was demolished by Amurat II. and afterwards rebuilt by the Venetians, but was levelled a second time by Mahomet II.

CORINTHIAN, in general, denotes something belonging to Corinth: thus we say, Corinthian brass, Corinthian order, &c.

CORINTHIAN Brass. See BRASS and CORINTH.

CORINTHIAN Order, an architecture, the fourth order of architecture, according to Scamozzi; but M. Le Clerc makes it the fifth, being the most noble and delicate of all the other five. See ARCHITECTURE, n^o 47.

CORIO (Bernardine) an historian, born of an illustrious family at Milan, in the year 1460. He was secretary of state to that duchy; and the Duke of Lavis Storza appointed him to write the history of Milan. He died in 1500. The best edition of his history is that of 1503, in folio. It is printed in Italian, and is very scarce.

CORIO LANUS (C. Marcius), a famous Roman captain, took Corioli a town of the Volsci, whence he had his surname: at last, disgusting the people, he was banished Rome by the tribune Decius. He went to the Volsci, and, persuading them to take up arms against the Romans, they encamped within four miles of the city. He would not listen to proposals of peace till he was prevailed upon by his wife Veturia, and his mother Volumnia, who were followed by all the Roman ladies in tears. He was put to death by the Volsci as a traitor that had made them quit their conquest: upon which the Roman ladies went into mourning; and in the same place where his blood was spilled there was a temple consecrated to feminine Virtue.

CORIS, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the

natural method ranking with those of which the order is doubtful. The corolla is monopetalous and irregular; the calyx prickly; the capsule quinquevalved superior. There is only one species, viz. the monspeliensis, or blue maritime coris. There are two varieties of this plant, one with a red, and the other with a white flower; but these are only accidental, and arise from the same seeds. They grow wild about Montpellier, and in most places in the south of France: they seldom grow above six inches high, and spread near the surface of the ground like heath; and in June, when they are full of flowers, make a very pretty appearance. They may be propagated by sowing their seeds in a bed of fresh earth, and afterwards removing the young plants, some into pots, and others into a warm border. They generally bear out winter colds well enough, but severe frosts will sometimes destroy them; for which reason it is proper to keep some of them in pots, which should be put under a hot-bed frame in winter. As they seldom produce good seeds in this country, they may, in want of these, be propagated by slips and cuttings, which will take root if planted on a very gentle hot-bed, shaded from the sun, and duly watered.

CORIS is also used in the East Indies for a kind of shells which pass for money.

CORISPERMUM, TICKSEED: A genus of the digynia order, belonging to the monandria class of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. There is no calyx; two petals, and one oval naked seed. There are two species; but none of them are remarkable for their beauty or any other quality.

CORITANI, (anc. geog.) a people of Britain, occupying widely the inland parts, as Northampton, Leicester, Rutland, Lincoln, Nottingham, and Derby shires, (Camden).

CORK, the bark of a tree of the same name, a species of *Quercus*. See *QUERCUS*.

To take off the bark they make an incision from the top to the bottom of the tree, and at each extremity another round the tree, perpendicular to the first. When stripped from the tree, which does not therefore die, the bark is piled up in a pond or ditch, and loaded with heavy stones to flatten it, and reduce it into tables: hence it is taken to be dried; and when sufficiently dry, put in bales for carriage. If care be not taken to strip the bark, it splits and peels off itself; being pushed up by another bark formed underneath.

The bark of cork, as well as the acorn, are of some use in medicine; being both reputed astringents, after being burnt and powdered when used externally; but the chief employ of the former is, to put in shoes, slippers, &c. and to stop bottles. The Spaniards burn it to make that kind of light black we call *Spanish black*, used by painters. Cups made of cork, are said by some to be good for hectic persons to drink out of. The Egyptians made coffins of cork; which being lined with a resinous composition, preserved dead bodies uncorrupted. The Spaniards line stone walls with it, which not only renders them very warm, but corrects the moisture of the air.

Fossil-Cork, a name given to a kind of stone. It seems to be a species of amianthus, consisting of flexible

Coris
Cork.

Cork.

ble fibres loosely interwoven, and somewhat resembling vegetable cork. It is the lightest of all stones; by fire it is fusible, and forms a black glass. It possesses the general qualities of amianthus. See that article.

CORK, in Latin *comitatus Corcagiensis*, a county of the province of Munster in Ireland. It is the most populous and considerable county of the kingdom next to that of Dublin; containing near a million of acres, and being divided into 15 baronies. It is bounded on the north-east by the county of Waterford; on the west by Kerry; by Limerick on the north; and by the sea on the south and south-east. Including Desmond it is 85 miles in length and 50 in breadth: but is very unequal both ways. Though a considerable part of the country is boggy, mountainous, and barren; yet by the industry of the inhabitants it is pretty well cultivated and improved, and contains several good towns and harbours.

CORK, a city of Ireland, and capital of the county of that name. It is an episcopal see; and is the largest and most populous of any in the kingdom, Dublin alone excepted. It is situated on the river Lee, 15 miles from its mouth. It is a place of great trade, the harbour here being one of the finest in the world. Though smaller vessels can come up to the quay, yet the larger generally ride at a place called *Passage*. This city, together with its liberties, makes a county. It was built or rather fortified by the Danes, in the ninth century. The greatest part of it stands on a marshy island surrounded by the river Lee, which also runs through the city, and divides it into several canals. On this account some have thought the air very moist and unwholesome. Complaints have also been made against the water as impure; but, from comparing the bills of mortality with those of other cities, it appears that the city of Cork is far from being unhealthy. This hath been accounted for from the influx of the tide, by which a stagnation of air is prevented. The first charter of Cork was bestowed by Henry III. and afterwards ratified by Edward I. Edward II. and Edward III. Edward IV. granted a new charter; and the city received many favours from the succeeding monarchs. King James I. gave the citizens a new and ample charter; and king Charles I. what is called the Great Charter, by which, among others, a clause in king James's charter was enforced, making this city a county of itself. The see of Cork is reputed worth L. 2700 a-year. The chapter consists of a dean, chanter, chancellor, treasurer, arch-deacon, and twelve prebendaries. The church is dedicated to St Barr or Finbarr; and the diocese is divided into five deaneries. There is very little to be found in ancient writers concerning the foundation of the Cathedral of Cork; yet it is generally ascribed to St Barr in the seventh century. Many of its bishops have been great benefactors to it. Through length of time, the church became quite ruinous; but it hath lately been completely rebuilt, and is now an elegant modern structure. To defray the expence, the parliament laid a tax on all coals consumed in the city of Cork. The deanery is reputed to be worth L. 400 a-year.

Cork is much improved and enlarged, several broad streets have been lately added, by filling up the canals that formerly ran through them, and are now built up with elegant houses: the parade is very spacious,

No 92.

and is adorned with an equestrian statue of king George II. It hath the largest export in the kingdom, particularly of beef, hides, tallow, butter, fish, and other provisions. It is partly situated on several islands, formed by the river Lee, which are banked and quayed in, somewhat like the towns in Holland; and partly on rising grounds, on the north and south sides of the river. The Earl of Marlborough besieged and took it from king James's army in 1690; when the duke of Grafton, who served as a volunteer, was slain in the attack. It contains about 8600 houses, and upwards of 70,000 inhabitants. It hath twelve companies of foot quartered in the barracks. Besides a stately cathedral, built from the foundation, between 1725 and 1735, by the produce of a duty upon coals, as above noticed, it is adorned with several handsome parish churches. It has also an elegant exchange for the merchants, a new and beautiful custom-house, a town-hall, several fine hospitals, and various other public structures. The city possesses an annual revenue of about 1300 l. out of which the mayor enjoys for his salary and the support of his dignity 500 l. The wealth and grandeur of Cork arise from its capacious and commodious haven, where almost any number of ships may lie with ease and safety. According to some accounts, when there has been no war, 1200 vessels have resorted hither in a year. Ships from England, bound to all parts of the West Indies, take in here a great part of their provisions; and on the same account the haven of Cork is visited by those also of most other nations. The slaughtering season continues from the month of August to the latter end of January; in which space it has been computed, that they kill and cure seldom fewer than 100,000 head of black cattle. The rest of their exports consist of butter, candles, hides raw and tanned, linen cloth, pork, calves, lambs, and rabbit-skins, tallow, wool for England, linen and woollen yarn, and worsted. The merchants of Cork carry on a very extensive trade to almost all parts of the known world; so that their commerce is annually increasing. The produce of the customs some years since exceeded 60,000 l. and the number of ships that they employ is double to what it was forty years ago. The only thing that seemed to be wanting to the security of the port of Cork was, supplied in the earl of Chesterfield's memorable administration, by building a fort on the great island, to command the entrance of the haven. The outlets of Cork are cheerful and pleasant. The country around the city, on both sides of the river, is hilly and picturesque; and the harbour called the *Cove*, is one of the best in the world; the entrance is safe, and the whole navy of England might ride in it, secure from every wind that blows. Ships of burden, however, are obliged to unload at Passage, five miles and a half from Cork, the channel not admitting vessels of above 150 tons.

CORK *Jacket* or *Waistcoat*, is an invention of one Mr. Dubourg, a gentleman very fond of swimming, but subject to the cramp, which led him to consider of some method by which he might enjoy his favourite diversion with safety. The waistcoat is composed of four pieces of cork, two for the breasts and two for the back; each pretty near in length and breadth to the quarters of a waistcoat without flaps; the

Cork.

Cormandel the whole is covered with coarse canvas, with two holes to put the arms through: there is a space left between the two back-pieces, and the same betwixt each back and breast-piece, that they may fit the easier to the body. Thus the waistcoat is only open before, and may be fastened on the wearer with strings, or, if it should be thought more secure, with buckles and leather straps. This waistcoat does not weigh above 12 ounces, and may be made up for about 5 or 6 shillings expence. Mr Dubourg tried his waistcoat in the Thames, and found that it not only supported him on the water, but that two men could not sink him, tho' they used their utmost efforts for that purpose. If those who use the sea occasionally, and especially those who are obliged to be almost constantly there, were to have those waistcoats, it would be next to impossible that they should be drowned. It would also be of vast service to those that, for the sake of health, bathe in the sea; and even the most delicate and timorous young lady might by the help of one of these jackets venture into a rough sea. See *Air-Jacket*, and *BAMBOO-Habit*.

CORMANDEL. See **COROMANDEL**.

COR-MASS, the name of a grand procession, said to have been established at Dunkirk during the dominion of Charles V. and renewed on St John's day, the twenty-fourth of June. After the celebration of high mass, the procession, consisting of the several tradesmen of the town, begins. Each person has a burning taper of wax in his hand: and after each company comes a pageant, followed by the patron-saint, usually of solid silver, richly wrought and adorned. The companies are followed by music; and after the musicians, the friars in the habits of their order, the secular priests, and then the abbot magnificently adorned, and preceded by the host. Machines likewise of various fantastical forms and devices, and as variously accoutred, form a part of the show on this occasion; which is described as one of the most superb and magnificent in the world, by an eye-witness, in 1755.

CORMORANT, a corruption of corvorant, in ornithology. See **PELICANUS**.

CORN, in country affairs, the grain or seeds of plants separated from the spica or ear, and used for making bread.

There are several species of corn, such as wheat, rye, and barley, millet and rice, oats, maize and lentils, pease, and a number of other kinds; each of which has its usefulness and propriety.

Europe, in every part of it; Egypt, and some other cantons of Africa, particularly the coasts of Barbary; and some parts of America cultivated by the Europeans, particularly New England, New France, and Acadia, are the places which produce corn. Other countries have maize and rice in lieu of it; and some parts of America, both in the islands and continents, simple roots, such as potatoes and minioc.—Egypt was anciently the most fertile of all other countries in corn; as appears both from sacred and profane history. It furnished a good part of the people subject to the Roman empire, and was called the *dry nurse of Rome and Italy*. Britain, France, and Poland, seem now in the place of Egypt, and with their superfluities support a good part of Europe.

For the first discovery and culture of corn, authors, Vol. V. Part II.

are much divided: the common opinion is, that in the first ages men lived on the spontaneous fruits of the earth; as acorns, and the nut or mast produced by the beech; which, they say, took its name *fagus*, from the Greek *φαγω*, *I eat*. It is added, that they had not either the use of corn, or the art of preparing or making it eatable.

Ceres has the credit of being the first that showed the use of corn, on which account she was placed among the gods; others gave the honour to Triptolemus; others share it between the two, making Ceres the first discoverer, and Triptolemus the first planter and cultivator of corn. Diodorus Siculus ascribes the whole to Isis; on which Polydore Virgil observes, he does not differ from the rest; Isis and Ceres being, in reality the same. The Athenians pretend it was among them the art began; and the Cretans or Candiot, Sicilians, and Egyptians, lay claim to the same. Some think the title of the Sicilians best supported, that being the country of Ceres: and authors add, she did not teach the secret to the Athenians, till she had first instructed her own countrymen. Others say, Ceres passed first into Attica, thence into Crete, and, last of all, into Sicily: many of the learned, however, maintain it was in Egypt the art of cultivating corn first began; and it is certain there was corn in Egypt and the East long before the time of Ceres.

Corn is very different from fruits, with respect to the manner of its preservation; and is capable of being preserved in public granaries, for pressing occasions, and of being kept for several centuries.—A little time after the siege of Metz, under Henry II. of France, in the year 1578, the duc d'Espernon laid up vast stores of corn in the citadel; which was preserved in good plight to the year 1707, when the French king and his retinue, passing that way, eat bread baked thereof.

The chief thing that contributes to the preservation of corn is, a crust which forms on its surface, by the germination of the grain next underneath, to the thickness of an inch and half. On that at Metz people walked, without its giving the least way. At Sedan was a granary cut in a rock, wherein a heap of corn was preserved a hundred and ten years: it was covered with a crust a foot thick.

For the preservation of corn, the first method is to let it remain in the spike; the only expedient for conveying it to the islands and provinces of America. The inhabitants of those countries save it in the ear, and raise it to maturity by that precaution: but this method of preserving it is attended with several inconveniences among us; corn is apt to rot or sprout, if any the least moisture is in the heap; the rats likewise infest it, and our want of straw also obliges us to separate the grain from the ear. The second is to turn out and winnow it frequently; or to pour it through a trough or mill-hopper, from one floor to another; being thus moved and aired every 15 days, for the first 6 months, it will require less labour for the future, if lodged in a dry place: but if, through neglect, mites should be allowed to slide into the heap, they will soon reduce the corn to a heap of dust: this must be avoided by moving the corn anew, and rubbing the places adjacent with oils and herbs, whose strong odour may chase them away; for which garlic and dwarf-elder

Corn
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Cornarius.

are very effectual; they may likewise be exposed to the open sun, which immediately kills them. When the corn has been preserved from all impurities for the space of two years, and has exhaled all its fires, it may be kept for 50 or even 100 years, by lodging it in pits covered with strong planks closely joined together: but the safer way is to cover the heap with quicklime, which should be dissolved by sprinkling it over with a small quantity of water; this causes the grains to shoot to the depth of two or three fingers; and incloses them with an incrustation, as above mentioned, through which neither air nor insects can penetrate.

Indian CORN or maize. See ZEA.

CORN Butterfly, method of destroying it. See AGRICULTURE, n^o 80.

CORN-Crake. See RALLUS.

CORN-Mill, a water-engine for grinding of corn. See MECHANICS.

CORNS, in surgery hard excrescences, consisting of indurations of the skin arising on the toes, and sometimes on the sides of the feet, where they are much exposed to the pressure of the shoes. By degrees they press themselves farther down between the muscular fibres on these parts, and by their irritation occasion extreme pain. Many cures have been prescribed, but the total removal of them is always found to be attended with great difficulty. It has been recommended to soften them with plasters, and then to pull them up by the roots, to apply caustic, &c. A piece of raw beef laid on by way of plaster, and frequently shifted, is also said to be effectual: but the best cure is to bathe them frequently in warm water, and pare away as much as possible of the indurated skin without drawing blood.

CORN, in farriery. See FARRIERY.

CORNAGE, an ancient tenure, the service whereof was to blow a horn when any invasion of the Scots was perceived. This tenure was very frequent in the northern counties near the Picts wall; but by stat. 12. Car. II. all tenures are converted into free and common socage.—An old rental calls cornage, *newt-geldt*, q. d. *neat-geld*. Lord Coke says, in old books it is called *borngeld*.

CORNARISTS, in ecclesiastical history, the disciples of Theodore Cornbert, an enthusiastic secretary of the states of Holland. He wrote at the same time against the Catholics, Lutherans, and Calvinists. He maintained that every religious communion needed reformation; but he added, that no person had a right to engage in accomplishing it, without a mission supported by miracles. He was also of opinion, that a person might be a good Christian without being a member of any visible church.

CORNARIUS, or HAGUENBOT, (John), a celebrated German physician, born at Zwickow in Saxony. His preceptor made him change his name of Haguenbot to that of Cornarius, under which he is most known. At 20 years of age he taught grammar, and explained the Greek and Latin poets and orators to his scholars; and at 23 was licentiate in medicine. He found fault with most of the remedies provided by the apothecaries; and observing, that the greatest part of the physicians taught their pupils only what is to be found in Avicenna, Rasis, and the other Arabian

physicians, he carefully sought for the writings of the best physicians of Greece, and employed about 15 years in translating them into Latin, especially the works of Hippocrates, Aetius, Eginetes, and a part of those of Galen. Meanwhile he practised physic with reputation at Zwickow, Frankfort, Marburg, Nordhausen, and Gena, where he died of an apoplexy in 1558, aged 58. He also wrote some medicinal treatises; published editions of some poems of the ancients on medicine and botany; and translated some of the works of the fathers, particularly those of Basil, and a part of those of Epiphanius.

CORNARO (Lewis), a Venetian of noble extraction, memorable for having lived healthful and active to above 100 years of age by a rigid course of temperance. By the ill conduct of some of his relations he was deprived of the dignity of a noble Venetian; and seeing himself excluded from all employments under the republic, he settled at Padua. In his youth he was of a weak constitution; and by irregular indulgence reduced himself at about 40 years of age, to the brink of the grave, under a complication of disorders; at which extremity he was told that he had no other chance for his life, but by becoming sober and temperate. Being wise enough to adopt this wholesome counsel, he reduced himself to a regimen of which there are very few examples. He allowed himself no more than 12 ounces of food and 14 ounces of liquor each day; which became so habitual to him, that when he was above 70 years of age, the experiment of adding two ounces to each by the advice of his friends, had like to have proved fatal to him. At 83 he wrote a treatise which has been translated into English, and often printed, intitled, *Sure and certain Methods of attaining a Long and Healthful Life*; in which he relates his own story, and extols temperance to a degree of enthusiasm. At length the yolk of an egg became sufficient for a meal, and sometimes for two, until he died with much ease and composure in 1566. The writer of the Spectator, n^o 195, confirms the fact from the authority of the Venetian ambassador at that time, who was a descendant of the Cornaro family.

CORNAVII (Ptolemy) a people of Britain, beginning in the very heart of the island, and extending to Chester. Now *Warwick, Worcester, Salop, Stafford* shires, and *Cheshire* (Camden).

CORNEA TUNICA, in anatomy, the second coat of the eye; so called from its substance resembling the horn of a lantern, in Latin *cornu*. See ANATOMY, n^o 142.

CORNEILLE (Peter), a celebrated French poet, was born at Rouen in the year 1606. He was brought up to the bar, which he attended for some little time; but formed with a genius too elevated for such a profession, and having no turn for business, he soon deserted it. An affair of gallantry occasioned his writing his first piece, intitled *Melite*; which had prodigious success. Encouraged by the applause of the public, he wrote the *Cid*, and the other tragedies that have immortalized his name. In his dramatic works he discovers a majesty, a strength and elevation of genius, scarce to be found in any other of the French poets; and, like our immortal Shakespeare, seems better acquainted with nature than with the rules of critics. Corneille was received into the French academy.

Cornaro
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Corneille.

Cornille
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Cornelia.

demy in 1647, and died dean of that academy in 1684, aged 73. Besides his dramatic pieces, he wrote a translation, in French verse, of the "Imitation of Jesus Christ," &c. The best edition of his works is that of 1682, in 4 vols 12mo.

CORNEILLE (Thomas), brother of the former, was a member of the French academy and of that of inscriptions. He discovered in his youth a great inclination to poetry; and at length published several dramatic pieces in 5 vols 12mo, some of which were applauded by the public, and acted with success. He also wrote, 1. A translation of Ovid's *Metamorphoses*, and some of Ovid's *Epistles*; 2. *Remarks on Vauglas*; 3. A *Dictionary of Arts*, 2 vols folio; and, 4. An universal, geographical, and historical *Dictionary*, in 3 vols folio.

CORNEILLE (Michael), a celebrated painter, was born at Paris in the year 1642; and was instructed by his father, who was himself a painter of great merit. Having gained a prize at the academy, young Corneille obtained a pension from Louis XIV.; and was sent to Rome, where that prince had founded a school for young artists of genius. Having studied there some time, he gave up his pension, and applied to the antique with great care. He is said to have equalled Carache in drawing, but in colouring he was deficient. Upon his return from Rome, he was chosen professor in the academy of Paris; and was employed by the above prince in all the great works he was carrying on at Versailles and Trianon, where are still to be seen some noble efforts of his genius.

CORNEL-TREE, in botany. See CORNUS.

CORNELIA, daughter of Scipio Africanus, was the mother of Tiberius and Caius Gracchus. She was courted by a king, but she preferred being the wife of a Roman citizen to that of a monarch. Her virtues have been deservedly commended, as well as the wholesome principles she inculcated in her two sons. When a Campanian lady made once a show of her jewels at Cornelia's house, and entreated her to favour her with a sight of her own, Cornelia produced her two sons, saying, "These are the only jewels of which I can boast."

CORNELIA *Lex, de civitate*, was enacted, in the year of Rome 670, by L. Corn. Sylla. It confirmed the Sulpician law, and required that the citizens of the eight newly elected tribes should be divided among the 35 ancient tribes.—Another, *de judiciis*, in 673, by the same. It ordained, that the prætor should always observe the same invariable method in judicial proceedings, and that the process should not depend upon his will.—Another, *de sumptibus*, by the same. It limited the expences which generally attended funerals.—Another *de religione*, by the same, in 677. It restored to the college of priests the privilege of choosing the priests, which by the Domitian law had been lodged in the hands of the people.—Another, *de municipiis* by the same; which revoked all the privileges which had been some time before granted to the several towns that had assisted Marius and Cinna in the civil wars.—Another, *de magistratibus*, by the same; which gave the power of bearing honours, and being promoted before the legal age, to those who had followed the interest of Sylla; while the sons and partizans of his

enemies, who had been proscribed, were deprived of the privilege of standing for any office in the state.—Another, *de magistratibus*, by the same in 673. It ordained, that no person should exercise the same office within ten years distance, or be invested with two different magistracies in one year.—Another, *de magistratibus*, by the same, in 673. It divested the tribunes of the privilege of making laws, interfering, holding assemblies, and receiving appeals. All such as had been tribunes were incapable of holding any other office in the state by that law.—Another, *de majestate*, by the same, in 670. It made it treason to lend an army out of a province or engage in a war without orders to influence the soldiers to spare or ransom a captive general of the enemy, to pardon the leaders of robbers or pirates, or for the absence of a Roman citizen to a foreign court without previous leave. The punishment was *aque et ignis interdictio*.—Another by the same. It gave the power to a man accused of murder, either by poison, weapons, or false accusations, and the setting fire to buildings, to choose whether the jury that tried him should give their verdict *clam* or *palam*, *viva voce*, or by ballot. Another by the same, which made it *aque et ignis interdictio* to such as were guilty of forgery, concealing and altering of wills, corruption, false accusations, and the debasing or counterfeiting of the public coin. All such as were accessory to this offence were deemed as guilty as the offender.—Another, *de pecuniis repetundis*; by which a man convicted of peculation or extortion in the provinces was condemned to suffer the *aque et ignis interdictio*.—Another, by the same; which gave the power to such as were sent into the provinces with any government, of retaining their command and appointment without a renewal of it by the senate, as was before observed.—Another by the same; which ordained, that the lands of proscribed persons should be common, especially those about Volaterræ and Fesulæ in Etruria, which Sylla divided among his soldiers.—Another by C. Cornelius tribune of the people, in 686. It ordained, that no person should be exempted from any law according to the general custom, unless 200 senators were present in the senate; and no person thus exempted could hinder the bill of his exemption from being carried to the people for their concurrence.—Another, by Naffica, in 582, to make war against Perseus, son of Philip king of Macedonia, if he did not give proper satisfaction to the Roman people.

CORNELIAN. See CARNELIAN.

CORNER, in a general sense, the same with ANGLE.

CORNET, in the military art of the ancients, an instrument much in the nature of a trumpet; which when it only sounded, the ensigns were to march alone without the soldiers; whereas, when the trumpet only sounded, the soldiers were to move without the ensigns. The cornets and buccinæ sounded the charge and retreat; and the cornets and trumpets sounded during the course of the battle. See Plate CL.

CORNET, in modern military œconomy, denotes an officer in the cavalry who bears the ensign or colours of a troop.

The cornet is the third officer in the company, and commands in the absence of the captain and lieutenant.

Cornelia
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Cornet.

Corneus
||
Cornucopia

He takes his title from his ensign, which is square; and is supposed to be called by that name from *cornu* because placed on the wings, which form a kind of points or horns of the army. - Others derive the name from *coronet*; alleging, that it was the ancient custom for these officers to wear coronets or garlands on their heads.

CORNEUS, the name by which Linnaeus calls a kind of tin-ore, found in black columns, with irregular sides, and terminating in prisms.

CORNICHE, CORNISH, or CORNICE, in architecture, the uppermost member of the entablature of a column, as that which crowns the order. See ARCHITECTURE, Chap. I. and the Plates.

CORNICHE, is also used, in general, for all little projectures in masonry or joinery, even where there are no columns, as the corniche of a chimney, beaufet, &c.

CORNICHE Ring, a piece of ordnance, is that next from the muzzle-ring, backward.

CORNICULARIUS, in antiquity, an officer in the Roman army, whose business was to aid and assist the military tribune in quality of a lieutenant.

The *cornicularii* went the rounds in lieu of the tribune, visited the watch, and were nearly what the aids major are in the French army.

The denomination *cornicularius* was given them from a little horn, called *corniculum*, which they used in giving orders to the soldiers: though Salmasius derives it from *corniculum*, the crest of an head-piece; it being an observation of Pliny, that they wore iron or brass horns on their helmets; and that these were called *cornicula*.

In the *Notitia Imperi* we find a kind of secretary or register of the same name. His business was to attend the judge, and enter down his sentiments and decisions. The critics derive the word, in this sense, from *corniculum*, a little horn to put ink in.

CORNICULUM (anc. geog.), a town of the Sabines, to the east of Crustumium, towards the Anio. It was burnt down by Tarquin; but restored again, after the expulsion of the kings. (Florus). Now in ruins, called *il Monte Genaro*, (Holstenius).

CORNISH DIAMOND, a name given by many people to the crystals found in digging the mines of tin in Cornwall. See CORNWAL, p. 462. col. 2.

CORNIX, in ornithology, the trivial name of a species of CORVUS.

CORNU. See HORN.

CORNU *Ammonis*, in natural history, fossil shells, called also *serpent-stones*, or *snake-stones*.

They are found of all sizes, from the breadth of a sixpence, to more than two feet in diameter; some of them rounded, others greatly compressed, and lodged in different strata of stones and clays; some again are smooth, and others ridged in different manners, their striae and ridges being either straight, irregularly crooked, or undulated. See SNAKE-STONE.

CORNU *Cervi*. See HARTSHORN.

CORNUCOPIA, among the ancient poets, a horn out of which proceeded plenty of all things; by a particular privilege which Jupiter granted his nurse, supposed to be the goat Amalthea. The fable is thus interpreted: That in Lybia there is a little territory shaped not unlike a bullock's horn, exceeding fertile,

given by king Ammon to his daughter, Amalthea, whom the poets feign to have been Jupiter's nurse.

In architecture, and sculpture, the cornucopia, or horn of plenty; is represented under the figure of a large horn, out of which issue fruits, flowers, &c. On medals, F. Joubert observes, the cornucopia is given to all deities.

CORNUCOPIÆ, in botany: A genus of the digynia order, belonging to the triandria class of plants; and in the natural method ranking under the 4th order, *Gramina*. The involucre is monophyllous, funnel shaped, crenated, and multiflorous; the calyx bivalved; corolla one valved.

CORNUS, CORNEL-TREE, CORNELIAN CHERRY, or DOG-WOOD: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 47th order, *Stellatae*. The involucre is most frequently tetraphyllous; the petals above the receptacle of the fruit four; the fruit itself a bilocular kernel.

Species. Of this genus there are five species; the most remarkable are the following. 1. The mass or cornelian cherry-tree, hath an upright tree-stem, rising 20 feet high, branching and forming a large head, garnished with oblong leaves, and small umbels of yellowish-green flowers at the sides and ends of the branches, appearing early in the spring, and succeeded by small, red, cherry-like, eatable, acid, fruit. 2. The sanguinea, bloody-twig, or common dog-wood: hath an upright tree-stem, branching 10 or 12 feet high, having blood-red shoots, garnished with oblong pointed nervous leaves two inches long; and all the branches terminated by umbellate white flowers, succeeded by black berries: of this there is a kind with variegated leaves. 3. The florida, or Virginian dog-wood, hath a tree-stem branching 12 or 15 feet high, and fine red shoots garnished with large heart-shaped leaves: and the branches terminated by umbellate white flowers, having a large involucre succeeded by dark red berries. Of this species there are several varieties, chiefly distinguished by the colour of their berries, which are red, white, or blue.

Culture. All the species may be propagated by seeds, which ought to be sown in autumn, otherwise they will lie a year in the ground. When the plants come up, they should be duly watered in dry weather, and kept clean from weeds. The following autumn, they may be transplanted into the nursery; and having remained there two or three years, they may then be removed to the places where they are to remain. They may also be propagated by suckers, of which they produce great plenty, or by laying down the young branches.

CORNUTIA, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personatae*. The calyx is quinque-lobed; the stamina larger than the corolla; the style very long; the berry monospermous. There is but one species, viz. the pyramidata, with a blue pyramidal flower, and hoary leaves. It grows plentifully in several of the islands of the West Indies, also at Campeachy, and at La Vera Cruz. It rises to the height of 10 or 12 feet, with rude branches, the leaves being placed opposite. The flowers are produced in spikes at the end.

Cornucopia
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Cornutia

end of the branches, and are of a fine blue colour. They usually appear in autumn, and will sometimes remain in beauty for two months or more. It is propagated either by seeds or cuttings, and makes a fine appearance in the stove; but is too tender to bear the open air in this country.

CORNWAL, the most westerly county of England, bounded by the English channel on the south, St George's channel on the west, the Bristol channel on the north, and on the east by the river Tamar, which separates it from Devonshire. Its name is supposed by some to be compounded of *carn*, signifying "a rock" in the British language, and *Gauls* or *Wauls*, the name the Saxons gave to the Britons. Others, however, think it is derived from the Latin *cornu*, or the British *kern*, "a horn;" on account of its running out into the sea somewhat in the form of a horn. Hither the ancient Britons (as well as in Wales) retired on the intrusion of the Saxons, where they opposed their further conquests. In this part of the island they formed a kingdom that existed for many years after under different princes, amongst whom were Ambrosius Aurelius, and the justly celebrated Arthur; nor were they subdued till the middle of the 7th century, from which time Cornwall was considered as subject to the West Saxon kings, who begun their sovereignty in 519, and continued it till 828, under 18 sovereigns, the last of whom was the great Egbert, who subdued all the others; and by uniting them, formed the kingdom of England, when this country was included in the county of Devon, then the 9th division; and that accounts for Alfred's not mentioning Cornwall, which on forming the circuits after the Norman conquest, is included in the western circuit. In 1337, Edward III. erected it into a dukedom, and invested with it *Edward the Black Prince*. But this, according to the express words of the grant, is limited to the first-born son and heir, on which account Richard II. was created duke of Cornwall by charter. So was Henry V. by his father Henry IV. Henry VI. delivered the duchy to his son prince Edward, and Edward IV. created his son Edward V. duke of Cornwall, as did Henry VII. his son, afterwards Henry VIII. upon the death of his elder brother Arthur. James I. created his son Henry duke of Cornwall, which title on his decease came to his brother Charles. The eldest sons of succeeding kings have enjoyed this title by inheritance. These not only appoint the sheriff, but all writs, deeds, &c. are in their name, and not in the king's; and they have also peculiar royalties and prerogative distinct from the crown, for which they appoint the officers. This county is 80 miles long, 40 broad, and 250 in circumference; containing 960,000 acres, and 126,000 inhabitants. It is divided into 9 hundreds; has 27 market towns, viz. Launceston, Truro, Falmouth, Helston, Saltash, Bodmyn, St Ives, Tregony, Camelford, Fowey, St Germans, Penryn, Callington, St Austle, East Looe, Padstow, St Colomb, Pensance, Grampond, Lescard, Lestwithiel, St Mawes, St Michael, Newport, Market Jew, Stratton, and Redruth; 1230 villages, 161 parishes, 89 vicarages, provides 640 men to the militia, and pays 8 parts of the land-tax. Its chief rivers are the Tamer, Fale Cober, Looe, Camel, Fowe, Haile, Lemara, Kense,

and Aire. Its principal capes or head lands are the Land's-end, the Lizard, Cape Cornwall, Deadman's-head, Rame-head, &c. and a cluster of islands, 144 in number, called the *Scilly isles*, supposed formerly to have been joined to the main land, though now 30 miles distant; abounding with antiquities, particularly druidical.

As Cornwall is surrounded by the sea on all sides except the east, its climate is somewhat different from that of the other parts of Britain. The reasons of this difference will be easily understood from what is observed concerning the climate of America. The summers in Cornwall are less hot, and the winters less cold, than in other parts of England, and the spring and harvest are observed to be more backward. High and sudden winds are also more common in this than in other counties of England. The county is rocky and mountainous; but the mountains are rich in metals, especially tin and copper. The valleys are very pleasant and fertile, yielding great plenty both of corn and pasture. The lands near the sea-coast are manured and fertilized with sea-weed, and a kind of sand formed by the particles of broken shells as they are dashed against each other by the sea. Cattle of all sorts are smaller here than in the other counties of England; and the wool of the sheep, which are mostly without horns, is very fine, and the flesh, both of them and the black cattle, extremely delicate. The county is well supplied with fish from the sea and the many rivers with which it is watered. The most noted of the sea-fish is the pilchard; of which prodigious quantities are caught from July to November, and exported to different parts, especially to Spain. It is said that a million have been sometimes taken at a single draught. The natives are remarkable for their strength and activity, as well as their dexterity in wrestling, in which exercise the Cornish hug is highly extolled.

This county abounds in mines of different metals and semimetals; but the principal produce is tin. The Phenicians early visited these coasts for this article, some think 400 or 450 years before Christ; and the mines continued to be wrought with various success at different periods. In the time of King John they appear to have yielded no great emolument; the right of working them being wholly in the king as earl of Cornwall, and the mines farmed by the Jews for 100 marks; and according to this proportion the 10th of it, L. 6. 13 s. 4 d. is at this day paid by the crown to the bishop of Exeter. In the time of Richard king of the Romans and earl of Cornwall, the tin-mines were immensely rich, the Jews being farmed out to him by his brother Henry III. what interest they had was at his disposal. The Spanish tin-mines being stopped by the Moors, and none discovered in Germany, the Malabar coast, or the Spanish West Indies, Cornwall and its earls had all the trade of Europe for it. The Jews being banished the kingdom, 18 Edw. I. they were again neglected till the gentlemen of Blackmore, lords of seven tithings best stored at that time with tin, obtained of Edmund earl of Cornwall, son of Richard king of the Romans, a charter under his own seal, with more explicit grants of privileges, courts, pleas, parliaments, and the toll-tin or $\frac{1}{17}$ th of all the tin raised. At this time too the right of bounding or dividing

Cornwal.

dividing tin-grounds into separate partitions for the encouragement of searching for it seems to have been first appointed, or at least adjusted. This charter was confirmed 33 Edward I. and the Cornish separated from the Devonshire tanners. Their laws, particularly recited in Plowden's Commentaries, p. 237, were further explained 50 Edw. III. confirmed and enlarged by parliament, 8 Rich. II. 3 Ed. IV. 1 Ed. VI. 1 and 2 P. and M. and 2 Eliz. and the whole society divided into four parts under one general warden to do justice in law and equity, from whose sentence lies an appeal to the duke of Cornwall in council, or for want of a duke of Cornwall to the crown. The lord-warden appoints a vice-warden to determine all stannery disputes every month: he also constitutes four stewards, one for each of the precincts before mentioned, who hold their courts every three weeks, and decide by juries of six persons, with an appeal reserved to the vice-warden, lord-warden, and lord of the prince's council. In difficult cases the lord-warden, by commission, issues his precept to the four principal towns of the stannery districts, who each choose six members and these twenty-four stannators constitute the parliament of tanners. Each stannator chooses an assistant, making a kind of standing council in a different apartment to give information to the prince. Whatever is enacted by the body of tanners must be signed by the stannators, the lord-warden, or his deputy, and by the duke or the king, and thenceforward has with regard to tin affairs all the authority of an act of the whole legislature. Five towns are appointed in the most convenient parts of the county for the tanners to bring their tin to every quarter of a year. These are Lelkard, Lestwithiel, Truro, Helston, and Pensance, the last added by Charles II. for the conveniency of the western tanners. In the time of Henry VIII. there were but two coinages, at Midsummer and Michaelmas: two more at Christmas and Lady-day were added, for which the tanners pay an acknowledgment called *Postgroats*, or 4d. for every hundred of white tin then coined. The officers appointed by the duke assay it; and if well purified stamp it by a hammer with the duchy seal, the arms of Richard earl of Cornwall, a lion rampant G. crowned O. within a bordure of bezants S; and this is a permission to the coiner to sell, and is called *coining the tin*. Every hundred of white tin so coined pays to the duke 4s. The tin of the whole county, which, in Carew's time, in the last century, amounted to 30 or 40,000 l. yearly, has for 24 years last past amounted one year with another to L. 180,000 or 190,000 sterling. Of this the duke of Cornwall receives for his 4s. duty on every hundred of white tin above L. 10,000 yearly: the bounders or proprietors of the soil about $\frac{1}{2}$ th at a medium clear, or about L. 30,000 yearly; the remainder goes to the adventurers in the mine, who are at all the charge of working. Tin is found collected and fixed in lodes and floors, or in grains and bunches in the natural rock, or loose and detached in single separate stones called *shodes* or *streams*, or in a continued course of such stones called the *beubeyl* or *living stream*, or in an arenaceous pulverized slate. It is most easily discovered by tracing the lodes by the scattered fragments of them called *shodes*, by leave of the lord of the soil or the bounder. The tin being divided among the lords and

adventurers, is stamped and worked at the mill; and being thus dressed is carried under the name of *black tin* to the melting-house, where it is melted by Welsh pit-coal, and poured into blocks of 320lb. weight, and carried to the coinage town. Mundic, a scarce metal or mineral ore, of a white, brassy, or brown colour, is found in large quantities, intermixed with tin, copper and lead, and sometimes by itself. Iron ore is found in Cornwall, but the working it does not answer. There is no richer copper, nor a greater variety any where than in this county. Silver, if really found here in the reigns of Edward I. and II. has been rarely found since, nor do the lead mines answer. Very late discoveries have proved that Cornwall has more gold than was formerly imagined. What is called the *Cornish diamond* is a figured crystal generally hexagonal and pyramidical, or columnar, or both, of a fine clear water, and of all our bastard diamonds in this nation esteemed the best, and some of different colours, black yellow, &c. The clearer these are, the better they will bear engraving for seals.

In privileges and language Cornwall seems to be another kingdom. By 21 Elizabeth it was ordered that all duty on Cornish cloth exported should be remitted to every Englishman within the duchy of Cornwall. This was first granted by the black prince, in consideration of their paying 4s. for the coinage of every hundred of tin; whereas Devonshire pays no more than 8d. They have also by grant from Richard earl of Cornwall, confirmed 25 Henry III. freedom to take sand out of the sea and carry it through the country for manure; whereupon in the following reign, on an inquisition made, we find a complaint that Saltash had lately taken 12s. yearly for each barge that carried sand up the Tamar; whereas nothing ought to be demanded. They still continue this ancient method of improving their land, carrying it ten miles up into the country, and great part of the way on horses' backs. Mr Ray supposes the virtue of this sand depends chiefly on the salt mixed with it, which is so copious that in many places salt is boiled up out of a lixivium made of the sea sand; and the reason why sand when it has lain long in the sun and wind proves less enriching and useful is, that the dews and rain evaporate great part of its salt. They had likewise a privilege of trading to all parts of the world, granted them by Charles I. in recompence of their loyalty.

The number of boroughs in this small county was surprisingly increased by Edward VI. who added seven to the original six, Mary two, Elizabeth six, making in all 21, sending 40 members besides the county two. Eight of these boroughs had an immediate or remote connection with the demesne lands of the duchy; the rest belonged to religious houses, or powerful families, or were old boroughs, which had legal immunities granted to them by their princes or lords.

The Cornish language is a dialect of that which till the Saxons came in was common to all Britain, and more anciently to Ireland and Gaul; but the inhabitants of this island being dispersed before those conquests, and driven into Wales and Cornwall, and thence into Bretagne, the same language, for want of frequent intercourse, became differently pronounced and written, and in different degrees mixed with different

Cornwal.

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Coromandel.

ferent languages. Hence came the Welsh, the Cornish and the Armoric dialects, whose radicals are so much alike that they are known and admitted by the inhabitants of either country; but the grammar so varied that they cannot converse. The Cornish is reckoned the most pleasing of the three. It was spoken so generally here down to the reign of Henry VIII. that Dr. John Moreman, vicar of Mynhinet, is said to have been the first who taught his parishioners the Lord's prayer, the creed, and ten commandments in English, and at the Reformation the natives desired the service in English. The older people in some parishes retained their original language to the middle of the last century: and the last sermon was preached in it in 1678. When Mr. Ray was here, 1662, he could find but one person who could write this language; and it is now so nearly extinct, that Mr Barrington, in 1768, could only find one old woman who could scold in it, and she is since dead.

CORODY. See REVENUE.

COROLLA, among botanists, the most conspicuous part of a flower, surrounding the organs of generation, and composed of one or more flower-leaves, most commonly called *petals*, to distinguish them from the leaves of the plant; according as there is one, two, or three of these petals, the corolla is said to be monopetalous, dipetalous, tripetalous, &c.

COROLLARY is a consequence drawn from something already advanced or demonstrated: thus, it being demonstrated that a triangle which has two equal sides, has also two angles equal; this corollary will follow, that a triangle which has three sides equal, has also its three angles equal.

COROLISTÆ, a name by which Linnæus distinguishes those systematic botanists who have arranged vegetables from the regularity, figure, number, and other circumstances, of the petals, or beautiful coloured leaves of the flower. The best systems of this kind are those of Rivinus and Tournefort. The former proceeds upon the regularity and number of the petals; the latter, with much more certainty, on their regularity and figure.

COROLLULA, a term used by botanists to express the little partial flowers which make up the compound ones.

COROMANDEL, the eastern coast of the peninsula on this side the Ganges in Asia. It is bounded on the north by Golconda, on the east by the bay of Bengal, on the south by Madura, and on the west by Bishnagar. This coast so much resembles that of Orixia, that the Abbé Raynal chooses to consider them as one, and gives to both the general name of *Coromandel*. Here an excessive heat reigns from the beginning of May to the end of October. It begins at nine in the morning, and continues till nine in the evening. During the night it is allayed by a sea-breeze from the south-east; and most commonly this refreshing gale begins at three in the afternoon. The air is less inflamed during the rest of the year, though in all seasons it is very hot. It rains almost continually during the months of November and December. This immense tract is covered with a parched sand for the extent of two miles, and sometimes only one mile along the coast.

This country was at first neglected by the Europe-

ans for many reasons. It was separated by inaccessible mountains from Malabar, where these bold adventurers endeavoured to settle themselves. Spices and aromatics, which were the principal objects of their attention, were not to be found there. In short, civil dissensions had banished from it tranquillity, security, and industry. At that period the empire of Bishnagar, to which this vast country was subject, was falling to ruin. The governments of Visapour, the Carnatic, Golconda, and Orixia, threw off their dependence, and assumed the title of kings. Those of Madura, Tanjore, Mysore, Gingi, and some others, likewise usurped the sovereign authority, though they retained their ancient title of *Naick*. This revolution had just happened when the Europeans appeared on the coast of Coromandel. The foreign trade was at that time inconsiderable; it consisted only of diamonds from Golconda, which were carried to Calicut and Surat, and from thence to Ormus or Suez, whence they were circulated through all Europe and Asia. Massulipatan, the richest and most populous city of these countries, was the only market that was known for linens; they were purchased at a great fair annually holden there by the Arabian and Malayan vessels that frequented that bay, and by caravans arrived from distant parts. The linens were exported to the same places with the diamonds. The fondness for the manufactures of Coromandel, which began to prevail here, inspired all the European nations trading to the Indian seas with the resolution of forming settlements there. They were not discouraged either by the difficulty of conveying goods from the inland parts of the country, where there was no navigable river; by the total want of harbours, where the sea at one season of the year is not navigable; by the barrenness of the coasts, for the most part uncultivated and uninhabited; nor by the tyranny and fluctuating state of the government. They thought that silver would be industriously sought after; that Pegu would furnish timber for building, and Bengal corn for subsistence; that a prosperous voyage of nine months would be more than sufficient to complete their loadings; and that by fortifying themselves they should be secure against the attacks of the weak tyrants that oppressed these countries.

The first European colonies were established near the shore. Some of them obtained a settlement by force; most of them were formed with the consent of the sovereigns; and all were confined to a very narrow tract of land. The boundaries of each were marked out by a hedge of thorny plants, which was their only defence. In process of time fortifications were raised; and the security derived from them, added to the lenity of the government, soon increased the number of colonists. The splendor and independence of these settlements several times raised the jealousy of the princes in whose dominions they were formed; but their attempts to demolish them proved abortive. Each colony increased in prosperity in proportion to the riches and the wisdom of the nation that founded it. None of the companies that exercised an exclusive privilege beyond the Cape of Good Hope had any concern in the trade of diamonds. This was always left to private merchants, and by degrees fell entirely into the hands of the English, or the Jews and

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and Armenians that lived under their protection. At present this grand object of luxury and industry is much reduced. The revolutions that have happened in Indostan have prevented people from resorting to these rich mines; and the anarchy in which this unhappy country is plunged, leaves no room to hope that they will be again attended to. The whole of the commercial operations on the coast of Coromandel is confined to the purchase of cottons. The manufacturing of the white cotton brought there, differs so little from ours, that it would be neither interesting nor instructive to enter into a minute description of it. The process used in making their printed cottons, which was at first servilely followed in Europe, has since been rendered more simple, and brought to greater perfection by our manufacturers. The painted cottons which are brought there, we have not yet attempted to imitate. Those who imagine we have been prevented from undertaking this branch merely by the high price of labour among us, are mistaken. Nature has not given us the wild fruits and drugs necessary for the composition of those bright and indelible colours which constitute the principal merit of the Indian manufactures; nor has she furnished us with the waters that serve to fix them. The Indians do not universally observe the same method in painting their cottons; either because there are some niceties peculiar to certain provinces, or because different soils produce different drugs for different uses. We should tire the patience of our readers were we to trace the slow and painful progress of the Indians in the art of painting their cottons. It is natural to believe that they owe it to length of time, rather than to the fertility of their genius. What seems to authorise this conjecture is, that they have stopped in their improvements, and have not advanced a single step in the arts for many ages; whereas we have proceeded with amazing rapidity. Indeed, were we to consider only the want of invention in the Indians, we should be tempted to believe, that, from time immemorial, they have received the arts they cultivate from some more industrious nation; but when it is remembered that these arts have a peculiar dependence on the materials, gums, colours and productions of India, we cannot but be convinced that they are natives of that country. It may appear somewhat surprizing that cottons painted with all sorts of colours should be sold at so moderate a price, that they are almost as cheap as those that have only two or three. But it must be observed, that the merchants of the country sell to all the companies a large quantity of cottons at a time; and that the demand for cottons painted with various colours make but a small article in their assortments, as they are not much esteemed in Europe.

Though cottons of all sorts are in some degree manufactured through the whole country of Indostan, which extends from Cape Comorin to the banks of the Ganges; it is observable, that the fine arts are made in the eastern part, the common ones in the centre, and the coarse ones in the most western parts. Manufactures are established in the European colonies, and upon the coast: they are more frequent at the distance of five or six leagues from the sea, where cotton is more cultivated, and provisions are cheaper. The purchases made there are carried 30 or 40 leagues

farther into the country. The Indian merchants settled in the European factories have always the management of this business. The quantity and quality of the goods wanted are settled with these people: the price is fixed according to the patterns: and at the time a contract is made, a third or fourth part of the money agreed on is advanced. This arrangement is owing to the necessity these merchants themselves are under of advancing money to the workmen by the partners or agents who are dispersed through the whole country: of keeping a watchful eye upon them, for fear of losing what they have advanced; and of gradually lessening the sum, by calling for the cottons as fast as they are worked off. Without these precautions, nothing could be depended on in an oppressive government, where the weaver cannot work on his own account, either because his circumstances will not permit, or because he dares not venture to discover them for fear of exactions. The companies that have either success or good management, constantly keep the stock of one year in advance in their settlements. By this method they are sure of having the quantity of goods they have occasion for, and of the quality they choose, at the most convenient time: not to mention that their workmen, and their merchants, who are kept in constant employment, never leave them. Such nations as want money and credit cannot begin their mercantile operations till the arrival of their ships. They have only five or six months at most to execute the orders sent from Europe. The goods are manufactured and examined in haste; and they are even obliged to take such as are known to be bad, and would be rejected at any other time. The necessity they are under of completing their cargoes, and fitting out their vessels before hurricanes come on, leaves no room for nicety of inspection. It would be a mistake to imagine that the country agents could be prevailed upon to order goods to be made on their account in hopes of selling them with a reasonable advantage to the company with whom they are engaged. For, besides that the generality of them are not rich enough to embark in so large an undertaking, they would not be certain of finding their account in it. If the company that employ them should be hindered by unforeseen accidents from sending the usual number of ships, these merchants would have no vent for their commodities. The Indians, the form of whose dress requires different breadths and lengths from those of the cottons fabricated for our use, would not purchase them; and the other European companies would be provided, or certain of being provided, with whatever the extent of their trade required, and their money enabled them to purchase. The plan of procuring loans, which was contrived to remedy this inconvenience, never has, nor can be useless. It has been a custom, time immemorial, in Indostan, for every citizen who borrows money, to give a written instrument to his creditor. This deed is of no force in a court of judicature, unless it is signed by three witnesses, and bears the day of the month and the year when it was made, with the rate of interest agreed upon by the parties. If the borrower fails to fulfil his engagements, he may be arrested by the lender himself. He is never imprisoned, because there is no fear of his making his escape. He would

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not even eat, without obtaining leave of his creditor. The Indians make a three-fold division of interest: one kind they call *vice*; another neither *vice* nor *virtue*; and a third, they say, is *virtue*. The first is four *per cent.* a month; the second two; and the third one. The last is, in their opinion, an act of beneficence that only belongs to the most heroic minds. Yet, though the Europeans, who are forced to borrow, meet with this treatment, it is plain they cannot avail themselves of the indulgence without being involved in ruin.

The foreign trade of Coromandel is not in the hands of the natives. In the western part, indeed, there are Mohammedans known by the name of *Ghalias*, who, at Naour and Porto-Nuovo, send out ships to Acken, Merguy, Siam, and the eastern coast. Besides vessels of considerable burden employed in these voyages, they have smaller embarkations for the coasting trade for Ceylon and the pearl fishery. The Indians of Massulipatan turn their attention another way. They import from Bengal white callicoes, which they dye or print, and sell them again at the places from whence they had them, at 35 or 40 *per cent.* advantage. Excepting these transactions, which are of very little consequence, the whole trade is vested in the Europeans, who have no partners but a few Banians and Armenians settled in their colonies. The quantity of callicoes exported from Coromandel to the different ports of India, may be computed at 3500 bales. Of these the French carry 800 to Malabar, Mocha, and the isle of France; the English, 1200 to Bombay, Malabar, Sumatra, and the Philippine Islands; and the Dutch 1500 to their different settlements. Except 500 bales destined for Manila, each of the value of 100 guineas, the others are of such an ordinary kind that they do not exceed 30 guineas at prime cost; so that the whole number of bales do not amount to more than about L. 150,000.

Coromandel furnishes Europe with 9500 bales; 800 of which are brought by the Danes, 2500 by the French, 3000 by the English, and 3200 by the Dutch. A considerable part of these callicoes are dyed blue, or striped blue and red for the African trade. The others are fine muslins, printed callicoes, and handkerchiefs from Massulipatan, or Paliacate. It is proved by experience that each of these bales costs only about L. 42 Sterling; consequently they ought to bring in to the manufactory where they are wrought near L. 360,000. The payments are not entirely made in specie, either in Europe or Asia; we give in exchange, cloths, iron, lead, copper, coral, and some other articles of less value. On the other hand, Asia pays with spices, pepper, rice, sugar, corn, and dates. All these articles taken together may amount to about L. 210,000; and from this calculation it follows, that Coromandel receives annually from Europe about L. 300,000 in money. The British, who have acquired the same superiority on this coast that they have elsewhere, have formed on it several settlements.

CORONA, among anatomists, denotes that edge of the glans penis where the preputium begins.

CORONA, or *Halo*, in optics, a luminous circle, surrounding the sun, the moon, the planets, or fixed stars. Sometimes these circles are white, and sometimes coloured, like the rainbow. Sometimes one only is vi-

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sible, and sometimes several concentric coronas make their appearance at the same time. Those which have been seen about Sirius and Jupiter were never more than three, four, or five degrees in diameter; those which surround the moon are, also, sometimes no more than three or five degrees; but these, as well as those which surround the sun, are of very different magnitudes, *viz.* of 12° 0', 22° 35', 30° 0', 38° 0', 41° 2', 45° 0', 46° 24', 47° 0', and 90°, or even larger than this. Their diameters also sometimes vary during the time of observation, and the breadths both of the coloured and white circles are very different, *viz.* of 2, 4, or 7 degrees.

The colours of these coronas are more dilute than those of the rainbow; and they are in a different order, according to their size. In those which Newton observed in 1692, they were in the following order, reckoning from the inside. In the innermost were blue, white, and red; in the middle were purple, blue, green, yellow, and pale red; in the outermost, pale blue and pale red. Mr Huygens observed red next the sun, and a pale blue outwards. Sometimes they are red on the inside and white on the outside. M. Weidler observed one that was yellow on the inside and white on the outside. In France, one was observed in 1683, the middle of which was white; after which followed a border of red; next to it was blue, then green, and the outermost circle was a bright red. In 1728, one was seen of a pale red outwardly, then followed yellow, and then green, terminated by a white.

These coronas are very frequent. In Holland, M. Muschenbroeck says, 50 may be seen in the day-time, almost every year; but they are difficult to be observed, except the eye be so situated, that not the body of the sun, but only the neighbouring parts of the heavens, can be seen. Mr Middleton says, that this phenomenon is very frequent in North America; for that there is generally one or two about the sun every week, and as many about the moon every month. Halos round the sun are very frequent in Russia. M. Æpinus says, that from the 23d of April 1758, to the 20th of September, he himself had observed no less than 26, and that he has sometimes seen twice as many in the same space of time.

Coronas may be produced by placing a lighted candle in the midst of steam in cold weather. Also, if glass windows be breathed upon, and the flame of a candle be placed some feet from it, while the spectator is also at the distance of some feet from another part of a window, the flame will be surrounded with a coloured halo. And if a candle be placed behind a glass receiver, when air is admitted into the vacuum within it, at a certain degree of density, the vapour with which it is loaded will make a coloured halo round the flame. This was observed by Otto Guericke. In December 1756, M. Muschenbroeck observed, that when the glass windows of his room were covered with a thin plate of ice on the inside, the moon appearing through it was surrounded with a large and variously coloured halo; and, opening the window, he found that it arose entirely from that thin plate of ice, for none was seen except through it.

Similar, in some respects, to the halo, was the remarkable

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Corona. markable appearance which M. Bouguer describes, as observed by himself and his companions on the top of Mount Pichinca, in the Cordilleras. When the sun was just rising behind them, so as to appear white, each of them saw his own shadow projected upon it, and no other. The distance was such, that all the parts of the shadow were easily distinguishable, as the arms, the leg, and the head; but what surprised them most was, that the head was adorned with a kind of glory, consisting of three or four small concentric crowns, of a very lively colour, each exhibiting all the varieties of the primary rainbow, and having the circle of red on the outside. The intervals between these circles continued equal, though the diameters of them all were constantly changing. The last of them was very faint, and at a considerable distance was another great white circle, which surrounded the whole. As near as M. Bouguer could compute, the diameter of the first of these circles was about $5\frac{2}{3}$ degrees, that of the second 11, that of the third 17, and so on; but the diameter of the white circle was about 76 degrees. This phenomenon never appeared but in a cloud consisting of frozen particles, and never in drops of rain like the rainbow. When the sun was not in the horizon, only part of the white circle was visible, as M. Bouguer frequently observed afterwards.

Similar also to this curious appearance was one that was observed by Dr M'Feat in Scotland. This gentleman observed a rainbow round his shadow in the mist, when he was upon an eminence above it. In this situation the whole country round seemed, as it were, buried under a vast deluge, and nothing but the tops of distant hills appeared here and there above the flood; so that a man would think of diving down into it with a kind of horror. In those upper regions the air, he says, is at that time very pure and agreeable to breathe in. At another time he observed a double range of colours round his shadow in these circumstances. The colours of the outermost range were broad and very distinct, and every where about two feet distant from the shadow. Then there was a darkish interval, and after that another narrower range of colours, closely surrounding the shadow, which was very much contracted. This person seems to think that these ranges of colours are caused by the inflection of the rays of light, the same that occasioned the ring of light which surrounds the shadows of all bodies, observed by M. Maraldi, and this author*. But the prodigious variety with which these appearances are exhibited seems to show that many of them do not result from the general laws of reflection, refraction, or inflection, belonging to transparent substances of a large mass; but upon the alternate reflexion and transmission of the different kinds of rays, peculiar to substances reduced to the form of thin plates, or consisting of separate and very minute parts. But where the dimensions of the coronas are pretty constant, as in the usual and larger halo, which is about half the diameter of the rainbow, they may, perhaps, be explained on the general principles of refraction only.

Descartes observes, that the halo never appears when it rains: from which he concludes that this phenomenon is occasioned by the refraction of light in the round particles of ice, which are then floating in the atmosphere; and though these particles are flat when

they fall to the ground, he thought they must be protuberant in the middle, before their descent; and according to this protuberancy he imagined that the diameter of the halo would vary.—In treating of meteors, Gassendi supposed that a halo is the same thing with the rainbow, the rays of light being in both cases twice refracted and once reflected within each drop of rain or vapour, and that all the difference there is between them arises from their different situation with respect to the observer. For, whereas, when the sun is behind the spectator, and consequently the rainbow before him, his eye is in the centre of the circle; when he views the halo, with his face towards the sun, his eye is in the circumference of the circle; so that according to the known principles of geometry, the angle under which the object appears in this case, must be just half of what it is in the other. Though this writer says a great deal upon the subject, and endeavours to give reasons why the colours of the halo are in a different order to those of the rainbow, he does not describe the progress of the rays of light from the sun to the eye of the spectator when a halo is formed by them, and he gives no figures to explain his ideas.

Dechales, also, endeavours to show that the generation of the halo is similar to that of the rainbow. If, says he, a sphere of glass or crystal, A B, ($n^{\circ} 1.$) full of Plate CL. water, be placed in the beams of the sun shining from C, there will not only be two circles of coloured light on the side next the sun, and which constitute the two rainbows; but there will also be another on the part opposite to the sun, the rays belonging to which meeting at E, afterwards diverge, and form the coloured circle G, as will be visible, if the light that is transmitted through the globe be received on a piece of white paper. The colours also will appear to an eye placed in any part of the surface of the cone FEG. Measuring the angle FEH, he found it to be 23 degrees. They were only the extreme rays of this cone that were coloured like those of the rainbow.

This experiment he thought sufficiently illustrated the generation of the halo; so that whenever the texture of the clouds is such, as not entirely to intercept the rays of the sun or moon, and yet have some degree of density, there will always be an halo round them, the colours of the rainbow appearing in those drops which are 23 degrees distant from the sun or moon. If the sun be at A, and the spectator in B, the halo will be the circle DFE, DBE being 46 degrees, or twice 23.

The reason why the colours of the halo are more dilute than those of the rainbow, he says, is owing principally to their being formed not in large drops of rain, but in very small vapour; for if the drops of water were large, the cloud would be so thick, that the rays of the sun could not be regularly transmitted through them; and, on the other hand, he had observed, that when the rainbow is formed by very thin vapours, the colours hardly appear. As for those circles of colours which are sometimes seen round candles, it was his opinion that they are owing to nothing but moisture on the eye of the observer; for that he could never produce this appearance by means of vapour only, if he wiped his eyes carefully; and he had observed that such circles are visible to some persons

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* *Edin. Essays*, Vol. i. p. 198.

Corona. and not to others, and to the same persons at one time and not another.

The most considerable of all the theories respecting halos, and that which has met with most favourable and the longest reception, is that of Mr Huygens. Sir Isaac Newton mentions it with respect, and Dr Smith, in his *Complete System of Optics*, does not so much as hint at any other. The occasion of Mr Huygens publishing his thoughts on this subject, was the appearance of a halo at Paris, on the 12th of May 1667, of which he gave an account in a paper read at the Royal Academy in that city, which was afterwards translated, and published in the *English Philosophical Transactions*, and which may be seen in Lowthorp's *Abridgment*, Vol. II. p. 189. But this article contains nothing more than the heads of a discourse, which he afterwards composed, but never quite finished, on this subject; and which has been translated, with some additions, by Dr Smith, from whom the following account is chiefly extracted.

Our philosopher had been first engaged to think particularly upon this subject, by the appearance of five suns at Warsaw, in 1658; presently after which, he says, he hit upon the true cause of halos, and not long after of that of mock suns also.

To prepare the way for the following observations, it must be remarked, that if we can conceive any kind of bodies in the atmosphere, which, according to the known laws of optics, will, either by means of reflection or refraction, produce the appearance in question, when nothing else can be found that will do it, we must acquiesce in the hypothesis, and suppose such bodies to exist, even though we cannot give a satisfactory account of their generation. Now, two such bodies are assumed by Mr Huygens; one of them a round ball, opaque in the centre, but covered with a transparent shell; and the other is a cylinder, of a similar composition. By the help of the former he endeavours to account for halos, and by the latter for those appearances which are called mock suns. Those bodies which Mr Huygens requires, in order to explain these phenomena, are not, however, a mere assumption; for some such, though of a larger size than his purpose requires, have been actually found, consisting of snow within and ice without. They are particularly mentioned by Descartes.

The balls with the opaque kernel, which he supposed to have been the cause of them, he imagines not to exceed the size of a turnip-seed; but, in order to illustrate this hypothesis, he gives a figure of one, of a larger size, in ABCDEF, (n^o 3.) representing the kernel of snow in the middle of it. If the rays of light, coming from GH, fall upon the side AD, it is manifest they will be so refracted at A and D, as to bend inwards; and many of them will strike upon the kernel EF. Others, however, as GA and HD, will only touch the sides of the kernel; and being again refracted at B and C, will emerge in the lines BK, CK, crossing each other in the point K, whose nearest distance from the globule is somewhat less than its apparent diameter. If, therefore, BK and CK be produced towards M and L, (n^o 4.) it is evident that no light can reach the eye placed within the angle LKM, but may fall upon it when placed out of that angle, or rather the cone represented by it.

For the same reason, every other of these globules will have a shadow behind it, in which the light of the sun will not be perceived. If the eye be at N, and that be conceived to be the vertex of a cone, the sides of which NR, NQ, are parallel to the sides of the former cone KL, KM, it is evident that none of the globules within the cone QNR can send any rays of the sun to the eye at N. But any other globule out of this cone, as X, may send those rays, which are more refracted than XZ, to the eye; so that this will appear enlightened, while those within the cone will appear obscure. It is evident from this, that a certain area, or space, quite round the sun, must appear dark; and that the space next to this area will appear luminous, and more so in those parts that are nearest to the obscure area; because, he says, it may easily be demonstrated, that those globules which are nearest to the cone QNR exhibit the largest image of the sun. It is plain, also, that a corona ought to be produced in the same manner whatever be the sun's altitude, because of the spherical figure of the globules.

To verify this hypothesis, our philosopher advises us to expose to the sun a thin glass bubble, filled with water, and having some opaque substance in the centre of it; and he says we shall find, that we shall not be able to see the sun through it, unless at a certain distance from a place opposite to the centre of it; but as soon as we do perceive the light, the image of the sun will immediately appear the brightest, and coloured red, for the same reason as in the rainbow.

These coronas, he says, often appear about the moon; but the colours are so weak as to appear only white. Such white coronas he had also seen about the sun, when the space within them appeared scarce darker than that without. This he supposes to happen when there are but few of those globules in the atmosphere; for the more plentiful they are, the more lively the colours of the halo appear; at the same time also the area within the corona will be the darker. The apparent diameter of the corona, which is generally about 45 degrees, depends upon the size of the dark kernel; for the larger it is with respect to the whole globule, the larger will be the dark cone behind it.

The globules that form these halos, Mr Huygens supposes to have consisted of soft snow, and to have been rounded by continual agitation in the air, and thawed on their outsidess by the heat of the sun.

To make the diameter of the halo 45 degrees, he demonstrates that the semidiameter of the globule must be to the semidiameter of the kernel of snow very nearly as 1000 to 480; and that to make a corona of 100 degrees, it must be as 1000 to 680.

W^r Weidler, in his *Commentary on parhelia*, published at Wirtemburgh in 1733, observes that it is very improbable that such globules as Mr Huygens's hypothesis requires, with nuclei of such a precise proportion, should exist; and if there were such bodies, he thinks they would be too small to produce the effects ascribed to them. Besides, he observes that appearances exactly similar to halos are not uncommon, where fluid vapour alone are concerned; as when a candle is placed behind the steam of boiling water in frosty weather, or in the midst of the vapour issuing

Corona.

copiously from a bath, or behind a receiver when the air is so much rarefied as to be incapable of supporting the water it contains. The rays of the sun twice reflected and twice refracted within small drops of water are sufficient, he says, without any opaque kernel, to produce all the appearances of the halos that have the red light towards the sun, as may be proved by experiment. That the diameter of the halos is generally half of that of the rainbow, he accounts for as Gassendi did before him.

M. Mariotte accounts for the formation of the small coronas by the transmission of light through aqueous vapours, where it suffers two refractions, without any intermediate reflection. He shows that light which comes to the eye, after being refracted in this manner, will be chiefly that which falls upon the drop nearly perpendicular; because more rays fall upon any given quantity of surface in that situation, fewer of them are reflected with small degrees of obliquity, and they are not so much scattered after refraction. The red will always be outermost in these coronas, as consisting of rays which suffer the least refraction. And whereas he had seen, when the clouds were driven briskly by the wind, halos round the moon, varying frequently in their diameter, being sometimes of two, sometimes of three, and sometimes of four degrees; sometimes also being coloured, sometimes only white, and sometimes disappearing entirely; he concluded that all these variations arose from the different thickness of the clouds, through which sometimes more and sometimes less light was transmitted. He supposed, also, that the light which formed them might sometimes be reflected, and at other times refracted. As to those coronas which consist of two orders of colours, he imagined that they were produced by small pieces of snow, which when they begin to dissolve, form figures which are a little convex towards their extremities. Sometimes, also, the snow will be melted in different shapes; and in this case, the colours of several halos will be intermixed and confused; and such, he says, he had sometimes observed round the sun.

M. Mariotte then proceeds to explain the larger coronas, namely those that are about 45 degrees in diameter, and for this purpose he has recourse to equiangular prisms of ice, in a certain position with respect to the sun; and he takes pains to trace the progress of the rays of light for this purpose: but this hypothesis is very improbable. In some cases he thought that these large coronas were caused by hail-stones, of a pyramidal figure; because after two or three of them had been seen about the sun, there fell the same day several such pyramidal hail-stones. M. Mariotte explains parhelia by the help of the same suppositions. See PARHELIA.

Sir Isaac Newton does not appear to have given any particular attention to the subject of halos, but he has hinted at his sentiments concerning them occasionally; by which we perceive that he considered the larger and less variable appearances of this kind as produced according to the common laws of refraction, but that the less and more variable appearances depend upon the same cause with the colours of thin plates.

He concludes his explication of the rainbow with

the following observation on halos and parhelia. "The light which come through drops of rain by two refractions, without any reflexion, ought to appear the strongest at the distance of about 26 degrees from the sun, and to decay gradually both ways as the distance from him increases. And the same is to be understood of light transmitted through spherical hail-stones: and if the hail be a little flatted, as it often is, the transmitted light may be so strong, at a little less distance than that of 26 degrees, as to form a halo about the sun or moon; which halo, as often as the hail-stones are duly figured, may be coloured, and then it must be red within by the least refrangible rays, and blue without by the most refrangible ones; especially if the hail-stones have opaque globules of snow in their centres to intercept the light within the halo, as Mr Huygens has observed, and make the inside of it more distinctly defined than it would otherwise be. For such hail-stones, though spherical, by terminating the light by the snow, may make a halo red within, and colourless without, and darker within the red than without, as halos use to be. For of those rays which pass close by the snow, the red-making ones will be the least refracted, and so come to the eye in the straightest lines."

Some farther thoughts of Sir Isaac Newton's on the subject of halos we find subjoined to the account of his experiments on the colours of thick plates of glass, which he conceived to be similar to those which are exhibited by thin ones. "As light reflected by a lens quick-silvered on the back side makes the rings of the colours above described, so (he says) it ought to make the like rings in passing through a drop of water. At the first reflexion of the rays within the drop, some colours ought to be transmitted, as in the case of a lens, and others to be reflected back to the eye. For instance, if the diameter of a small drop or globule of water be about the 500th part of an inch, so that a red-making ray, in passing through the middle of this globule, has 250 fits of easy transmission within the globule, and all the red-making rays which are at a certain distance from this middle ray round about it have 249 fits within the globule, and all the like rays at a certain farther distance round about it have 248 fits, and all those at a certain farther distance 247 fits and so on, these concentric circles of rays, after their transmission, falling on a white paper, will make concentric rings of red upon the paper; supposing the light which passes through one single globule strong enough to be sensible, and in like manner the rays of other colours will make rings of other colours. Suppose now that in a fair day the sun should shine through a thin cloud of such globules of water or hail, and that the globules are all of the same size, the sun seen through this cloud ought to appear surrounded with the like concentric rings of colours, and the diameter of the first ring of red should be $7\frac{1}{4}$ degrees, that of the second $10\frac{1}{4}$, that of the third $12^{\circ} 33'$, and according as the globules of water are bigger or less, the ring should be less or bigger."

This curious theory our author informs us was confirmed by an observation which he made in 1692. He saw by reflexion, in a vessel of stagnating water, three halos, crowns, or rings of colours about the sun, like three little rainbows concentric to his body. The colours

Corona.

Corona. lours of the first, or innermost crown, were blue next the sun, red without, and white in the middle, between the blue and red. Those of the second crown were purple and blue within, and pale red without, and green in the middle. And those of the third were pale blue within, and pale red without. These crowns inclosed one another immediately, so that their colours proceeded in this continual order from the sun outward; blue, white, red; purple, blue, green, pale, yellow, and red; pale blue, pale red. The diameter of the second crown, measured from the middle of the yellow and red on one side of the sun, to the middle of the same colour on the other side, was $9\frac{1}{2}$ degrees or thereabouts. The diameters of the first and third he had not time to measure; but that of the first seemed to be about five or six degrees, and that of the third about twelve. The like crowns appear sometimes about the moon; for in the beginning of the year 1664, on February 19th at night, he saw two such crowns about her. The diameter of the first, or innermost, was about three degrees, and that of the second about five degrees and a half. Next about the moon was a circle of white; and next about that the inner crown, which was of a bluish green within, next the white, and of a yellow and red without; and next about these colours were blue and green on the inside of the outer crown, and red on the outside of it.

At the same time there appeared a halo at the distance of about $22^{\circ} 35'$ from the centre of the moon. It was elliptical; and its long diameter was perpendicular to the horizon, verging below farthest from the moon. He was told that the moon has sometimes three or more concentric crowns of colours encompassing one another next about her body. The more equal the globules of water or ice are to one another, the more crowns of colours will appear, and the colours will be the more lively. The halo, at the distance of $22\frac{1}{2}$ degrees from the moon, is of another sort. By its being oval, and more remote from the moon below than above, he concludes that it was made by refraction in some kind of hail or snow floating in the air in an horizontal posture, the refracting angle being about 50 or 60 degrees. Dr Smith, however, makes it sufficiently evident, that the reason why this halo appeared oval, and more remote from the moon towards the horizon, is a deception of sight, and the same with that which makes the moon appear larger in the horizon.

Dr Kotelnihow, having, like Dr Halley, made very accurate observations to determine the number of possible rainbows, considers the coloured halo which appears about a candle as the same thing with one of these bows which is formed near the body of the sun, but which is not visible on account of his excessive splendor.

Lastly, M. Muschenbroeck concludes his account of coronas with observing, that some density of vapour, or some thickness of the plates of ice, divides the light in its transmission through the small globules of water, or their interstices, into its separate colours: but what that density was, or what was the size of the particles which composed the vapour, he could not pretend to determine.

CORONA, among botanists, the name given by some to the circumference or margin of a radiated compound flower. It corresponds to the radius of Linnæus; and is exemplified in the flat, tongue-shaped petals which occupy the margin of the daisy or sun-flower.

CORONA Australis, or *Meridionalis*, Southern Crown, a constellation of the southern hemisphere, whose stars in Ptolemy's catalogue are 13, in the British catalogue 12.

CORONA Borealis, the Northern Crown, or Garland, in astronomy, a constellation of the northern hemisphere, whose stars in Ptolemy's catalogue are eight, in Tycho's as many, and in Mr Flamsteed's 21.

CORONA Imperialis, in conchyology, a name given by some authors to a kind of voluta, differing from the other shells of that family, by having its head ornamented with a number of points, forming a sort of crown. See **VOLUTA**.

CORONAL, in anatomy, the first suture of the skull. See **ANATOMY**, n° 13.

CORONALE os, the same with the os frontis. See **ANATOMY**, n° 12.

CORONARY VESSELS, in anatomy, certain vessels which furnish the substance of the heart with blood.

CORONARY Arteries, are two arteries springing out of the aorta, before it leaves the pericardium. See **ANATOMY**, n° 122, and 123.

CORONARY Vein, a vein diffused over the exterior surface of the heart. See **ANATOMY**, n° 122.

Stomachic CORONARY, a vein inserted into the trunk of the splenic vein, which, by uniting with the mesenteric, forms the vena porta. See **ANATOMY**, n° 123.

CORONARIÆ, in botany, the 10th order of plants in Linnæus's Fragments of a natural method. Under this name, instead of the more obvious one *libacca*, Linnæus collects a great number of genera, most of which furnish very beautiful garden-flowers, viz. albuca, cyanella, fritillaria, helonias, hyacinthus, hypoxis, lilium, melanthium, ornithogalum, scilla, tulipa, agave, alettris, aloë, anthericum, asphodelus, bromelia, burmannia, hemerocallis, polianthes, tillandsia, veratrum, yucca.

CORONATION, the ceremony of investing with a crown, particularly applied to the crowning of kings, upon their succeeding to the sovereignty. See **KING**.

CORONÆ (anc. geog.), a town of Bœotia, near mount Helicon, and the lake Copais, situated on an eminence: famous for the defeat of the Athenians and Bœotians by Agesilaus.—Another Coronæ of Thessaly; having Narthacium to the east, and Lamia, near the Sperchius to the north, (Ptolemy).

CORONÆ (anc. geog.), a town of Messenia, situated on the sea, giving name to the Sinus Coronæus, (Pliny): now *Golfo di Coron*. Pausanias takes it to be the *Aepea* of Homer; but Strabo *Thuria*, and Pliny *Pedafus*, now *Coron*, in the territory of Belvidere, in the Morea. E. Long. 22. N. Lat. 36. 30.

CORONELLI (Vincent), a famous geographer, born at Venice. His skill in the mathematics having brought him to the knowledge of the count d'Estrees, his eminence employed him in making globes for Louis XIV. With this view Cornelli spent some time

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Coroner. time at Paris; and left a great number of globes there, which are esteemed. In 1685, he was made cosmographer to the republic of Venice; and four years after, public professor of geography. He founded an academy of cosmography at Venice; and died in that city in 1718. He published above 400 geographical charts, an abridgement of cosmography, several books on geography, and other works.

CORONER (*coronator*), an ancient officer in England, so called because he hath principally to do with pleas of the crown, or such wherein the king is more immediately concerned. And in this light, the lord chief justice of the king's bench is the principal coroner in the kingdom; and may, if he pleases, exercise the jurisdiction of a coroner in any part of the realm. But there are also particular coroners for every county of England; usually four, but sometimes six, and sometimes fewer. This officer is of equal authority with the sheriff; and was ordained, together with him, to keep the peace when the earls gave up the wardship of the county.

He is chosen by all the freeholders of the county court; and by the statute of Westminster 1. it was enacted, that none but lawful and discreet knights should be chosen: but it seems now sufficient if a man have lands enough to be made a knight, whether he be really knighted or not: for the coroner ought to have an estate sufficient to maintain the dignity of his office, and answer any fines that may be made upon him for his misbehaviour; and, if he hath not enough to answer, his fine shall be levied on the county, as a punishment for electing an insufficient officer. Now, indeed, through the culpable neglect of gentlemen of property, this office has been suffered to fall into disrepute, and get into low and indigent hands; so that although formerly no coroners would be paid for serving their country, and they were by the aforesaid statute of Westminster 1. expressly forbidden to take a reward under pain of great forfeiture to the king; yet for many years past they have only desired to be chosen for the sake of their perquisites; being allowed fees for their attendance by the statute 3 Hen. VII. c. 1. which Sir Edward Coke complains of heavily, though since his time those fees have been much enlarged.

The coroner is chosen for life; but may be removed, either by being made sheriff or chosen verderor, which are offices incompatible with the other; and by the statute 25 Geo. II. c. 29. extortion, neglect, or misbehaviour, are also made causes of removal.

The office and power of a coroner are also, like those of the sheriff, either judicial or ministerial; but principally judicial. This is in great measure ascertained by statute 4 Edw. I. *De officio coronatoris*; and consists, first, in inquiring, when any person is slain, or dies suddenly, or in prison, concerning the manner of his death. And this must be *super visum corporis*; for if the body is not found, the coroner cannot sit. He must also sit at the very place where the death happened. And his inquiry is made by a jury from four, five, or six of the neighbouring towns, over whom he is to preside. If any be found guilty by this inquest of murder, he is to commit to prison for farther trial, and is also to inquire concerning their lands, goods, and chattels, which are forfeited thereby: but whe-

ther it be murder or not, he must inquire whether any deodand has accrued to the king, or the lord of the franchise, by this death; and must certify the whole of this inquisition to the court of king's bench, or the next assizes. Another branch of his office is to inquire concerning shipwrecks; and certify whether wreck or not, and who is in possession of the goods. Concerning treasure-trove, he is also to inquire concerning the finders, and where it is, and whether any one be suspected of having found and concealed a treasure; "and that may well be perceived (saith the old statute of Edw. I.), where one liveth riotously, haunting taverns, and hath done so of long time;" whereupon he might be attached and held to bail upon this suspicion only.

The ministerial office of the coroner is only as the sheriff's substitute. For when just exception can be taken to the sheriff, for suspicion of partiality (as that he is interested in the suit, or of kindred to either plaintiff or defendant), the process must then be awarded to the coroner, instead of the sheriff, for execution of the king's writs.

CORONET. See CROWN.

CORONET, or cornet, of a horse, the lowest part of the paster, which runs round the coffin, and is distinguished by the hair joining and covering the upper part of the hoof.

CORONILLA, jointed podded *COLUTEA*: A genus of the decandria order, belonging to the diadelphia class of plants; and in the natural method ranking under the 32d order, *Papilionaceae*. The calyx is bilabiate, with two segments above coalited; the vexillum scarce any longer than the alae; the legumen much contracted between the seeds. To this genus Linnæus also joins the emerus, or scorpion fena; though Mr Miller makes it a distinct species. There are 11 species, all of them plants of considerable beauty, with very bright yellow flowers. All of them, however, are rather too tender for this climate, except the emerus. This species rises with a shrubby stem, branching numerously six or eight feet high, closely garnished with winged leaves of three pair of lobes, terminated by an odd one; and, at the sides of the branches, numerous long flower-stalks, each supporting two or three large yellow flowers of the papilionaceous kind, succeeded by longish pods; it is easily propagated by seeds, and likewise by layers or cuttings. The leaves of this plant are esteemed laxative, and used as a substitute for common fena in some parts of Europe. A dye is procured by fermentation from the leaves, like that of indigo.

CORONOID, and **CONDYLOID**, processes. See ANATOMY, n° 26.

CORPORA CAVERNOSA, in anatomy, two spongy bodies, called also *corpora nervosa* and *corpus spongiosum*. See ANATOMY, p. 738. col. 2.

CORPORA PYRAMIDALIA, are two protuberances of the under part of the *cerebellum*, about an inch long; so called from their resemblance to a pyramid. See ANATOMY, n° 134.

CORPORA STRIATA. See ANATOMY, p. 758. col. 1.

CORPORAL, an inferior officer under a sergeant, in a company of foot, who has charge over one of the divisions, places and relieves centinels, and keeps good order in the corps de garde: he also receives the word from the inferior rounds, which passes by his

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corps de garde. This officer carries a fusée, and is commonly an old soldier: there are generally three corporals in each company.

CORPORAL of a Ship of War, an officer under the master at arms, employed to teach the officers the exercise of small arms, or of musketry; to attend at the gang-way, on entering ports, and observe that no spirituous liquors are brought into the ship, unless by express leave from the officers. He is also to extinguish the fire and candles at eight o'clock in winter and nine in summer, when the evening gun is fired; and to walk frequently down in the lower decks in his watch, to see that there are no lights but such as are under the charge of proper centinels.

CORPORAL (Corporale), is also an ancient church-term, signifying the sacred linen spread under the chalice in the eucharist and mass, to receive the fragments of the bread, if any chance to fall. Some say, it was pope Eusebius who first enjoined the use of the corporal; others ascribe it to St Sylvester. It was the custom to carry corporals, with some solemnity, to fires, and to heave them against the flames, in order to extinguish them. Philip de Comines says, the pope made Louis XI. a present of the corporale whereon my lord St Peter sung mass.

CORPORATION, a body politic or incorporate, so called, because the persons or members are joined into one body, and are qualified to take, grant, &c.

Of corporations there is a great variety subsisting, for the advancement of religion, of learning, and of commerce; in order to preserve entire and for ever those rights and immunities, which, if they were granted only to those individuals of which the body corporate is composed, would upon their death be utterly lost and extinct. To show the advantages of these incorporations, let us consider the case of a college in either of our universities, founded *ad studendum et orandum*, for the encouragement and support of religion and learning. If this was a mere voluntary assembly, the individuals which compose it might indeed read, pray, study, and perform scholastic exercises together, so long as they could agree to do so: but they could neither frame, nor receive, any laws or rules of their conduct; none at least which would have any binding force, for want of a coercive power to create a sufficient obligation. Neither could they be capable of retaining any privileges or immunities: for, if such privileges be attacked, which of all this unconnected assembly has the right or ability to defend them? And, when they are dispersed by death or otherwise, how shall they transfer these advantages to another set of students, equally unconnected as themselves? So also, with regard to holding estates or other property, if land be granted for the purposes of religion or learning to 20 individuals not incorporated, there is no legal way of continuing the property to any other persons for the same purposes, but by endless conveyances from one to the other, as often as the hands are changed. But when they are consolidated and united into a corporation, they and their successors are then considered as one person in law: as one person, they have one will, which is collected from the sense of the majority of the individuals: this one will may establish rules and orders for the regulation of the whole, which are a sort of mu-

nicipal laws of this little republic; or rules and statutes may be prescribed to it at its creation, which are then in the place of natural laws: the privileges and immunities, the estates and possessions, of the corporation, when once vested in them, will be for ever vested, without any new conveyance to new successions; for all the individual members that have existed from the foundation to the present time, or that shall ever hereafter exist, are but one person in law, a person that never dies: in like manner as the river Thames is still the same river, though the parts which compose it are changing every instant.

The honour of originally inventing these political constitutions entirely belongs to the Romans. They were introduced, as Pluarch says, by Numa; who finding, upon his accession, the city torn to pieces by the two rival factions of Sabines and Romans, thought it a prudent and politic measure to subdivide these two into many smaller ones, by instituting separate societies of every manual trade and profession. They were afterwards much considered by the civil law, in which they were called *universitates*, as forming one whole out of many individuals; or *collegia*, from being gathered together: they were adopted also by the canon law, for the maintenance of ecclesiastical discipline; and from them our spiritual corporations are derived. But our laws have considerably refined and improved upon the invention, according to the usual genius of the English nation; particularly with regard to sole corporations, consisting of one person only, of which the Roman lawyers had no notion; their maxim being that, *Tres faciunt collegium*: though they held, that if a corporation, originally consisting of three persons, be reduced to one, *Si universitas ad unum redit*, it may still subsist as a corporation, *Et stet nomen universitatis*.

As to the several sorts of corporations, the first division of them is into *aggregate* and *sole*. Corporations aggregate consist of many persons united together into one society, and are kept up by a perpetual succession of members, so as to continue for ever: of which kind are the mayor and commonalty of a city, the head and fellows of a college, the dean and chapter of a cathedral church. Corporations sole consist of one person only and his successors, in some particular station, who are incorporated by law, in order to give them some legal capacities and advantages, particularly that of perpetuity, which in their natural persons they could not have had. In this sense the king is a sole corporation; so is a bishop; so are some deans and prebendaries, distinct from their several chapters; and so is every parson and vicar. And the necessity, or at least use, of this institution will be very apparent, if we consider the case of a parson of a church. At the original endowment of parish-churches, the freehold of the church, the church-yard, the parsonage-house, the glebe, and the tithes of the parish, were vested in the then parson by the bounty of the donor, as a temporal recompence to him for his spiritual care of the inhabitants, and with intent that the same emoluments should ever afterwards continue as a recompence for the same care. But how was this to be effected? The freehold was vested in the parson; and, if we suppose it vested in his natural capacity, on his death it might descend to his heir, and would be liable to his debts and incumbrances.

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brances: or at best the heir might be compellable, at some trouble and expence, to convey these rights to the succeeding incumbent. The law therefore has wisely ordained, that the parson, *quatenus* parson, shall never die, any more than the king; by making him and his successors a corporation. By which means all the original rights of the parsonage are preserved entire to the successor: for the present incumbent, and his predecessor who lived seven centuries ago, are in law one and the same person; and what was given to the one was given to the other also.

Another division of corporations, either sole or aggregate, is into *ecclesiastical* and *lay*. Ecclesiastical corporations are where the members that compose it are entirely spiritual persons; such as bishops; certain deans and prebendaries; all archdeacons, parsons, and vicars; which are sole corporations: deans and chapters at present, and formerly prior and convent, abbot and monks, and the like, bodies aggregate. These are erected for the furtherance of religion, and perpetuating the rights of the church.—Lay corporations are of two sorts, *civil* and *eleemosynary*. The civil are such as are erected for a variety of temporal purposes. The king, for instance, is made a corporation, to prevent in general the possibility of an *interregnum* or vacancy of the throne, and to preserve the possessions of the crown entire; for, immediately upon the demise of one king, his successor is in full possession of the regal rights and dignity. Other lay corporations are erected for the good government of a town or particular district, as a mayor and commonalty, bailiff and burghesses, or the like: some for the advancement and regulation of manufactures and commerce; as the trading companies of London and other towns: and some for the better carrying on of divers special purposes; as church-wardens, for conservation of the goods of the parish; the college of physicians and company of surgeons in London, for the improvement of the medical science; the royal society for the advancement of natural knowledge; and the society of antiquarians for promoting the study of antiquities. The eleemosynary sort are such as are constituted for the perpetual distribution of the free alms, or bounty, of the founder of them to such persons as he has directed. Of this kind are all hospitals for the maintenance of the poor, sick, and impotent; and all colleges, both *in* our universities and *out* of them: which colleges are founded for two purposes: 1. For the promotion of piety and learning by proper regulations and ordinances. 2. For imparting assistance to the members of those bodies, in order to enable them to prosecute their devotion and studies with greater ease and assiduity. And all these eleemosynary corporations are, strictly speaking, lay, and not ecclesiastical, even though composed of ecclesiastical persons, and although they in some things partake of the nature, privileges, and restrictions of ecclesiastical bodies.

Having thus marshalled the several species of corporations, let us next proceed to consider, 1. How corporations in general may be created. 2. What are their powers, capacities, and incapacities. And, 3. How they may be dissolved.

I. Corporations, by the civil law, seem to have been created by the mere act and voluntary associa-

tion of their members; provided such convention was not contrary to law, for then it was *illicitum collegium*. It does not appear that the prince's consent was necessary to be actually given to the foundation of them; but merely that the original founders of these voluntary and friendly societies (for they were little more than such) should not establish any meetings in opposition to the laws of the state.

But in England the king's consent is absolutely necessary to the erection of any corporation, either impliedly or expressly given. The king's implied consent is to be found in corporations which exist by force of the common law, to which our former kings are supposed to have given their concurrence; common law being nothing else but custom, arising from the universal agreement of the whole community. Of this sort are the king himself, all bishops, parsons, vicars, church-wardens, and some others; who by common law have ever been held (as far as our books can show us) to have been corporations, *virtute officii*: and this incorporation is so inseparably annexed to their offices, that we cannot frame a complete legal idea of any of these persons, but we must also have an idea of a corporation, capable to transmit his rights to his successors, at the same time. Another method of implication, whereby the king's consent is presumed, is as to all corporations by prescription, such as the city of London, and many others, which have existed as corporations, time whereof the memory of man runneth out to the contrary; and therefore are looked upon in law to be well created. For though the members thereof can show no legal charter of incorporation, yet in cases of such high antiquity the law presumes there once was one; and that by the variety of accidents, which a length of time may produce, the charter is lost or destroyed. The methods by which the king's consent is expressly given, are either by act of parliament or charter. By act of parliament, of which the royal assent is a necessary ingredient, corporations may undoubtedly be created: but it is observable, that most of those statutes, which are usually cited as having created corporations, do either confirm such as have been before created by the king; as in the case of the college of physicians, erected by charter 10 Hen. VIII. which charter was afterwards confirmed in parliament; or, they permit the king to erect a corporation *in futuro* with such and such powers; as is the case of the bank of England, and the society of the British fishery. So that the immediate creative act is usually performed by the king alone, in virtue of his royal prerogative.

All the other methods therefore whereby corporations exist, by common law, by prescription, and by act of parliament, are for the most part reducible to this of the king's letters patent, or charter of incorporation. The king's creation may be performed by the words *creamus, erigimus, fundamus, incorporamus*, or the like. Nay it is held, that if the king grants to a set of men to have *gildam mercatorium*, "a mercantile meeting or assembly," this is alone sufficient to incorporate and establish them for ever.

The king (it is said) may grant to a subject the power of erecting corporations, though the contrary was formerly held; that is, he may permit the sub-

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ject to name the person and powers of the corporation at his pleasure; but it is really the king that erects, and the subject is but the instrument; for tho' none but the king can make a corporation, yet *qui facit per alium, facit per se*. In this manner the chancellor of the university of Oxford has power by charter to erect corporations; and has actually often exerted it in the erection of several matriculated companies, now subsisting, of tradesmen subservient to the students.

When a corporation is erected, a name must be given it; and by that name alone it must sue and be sued, and do all legal acts.

II. After a corporation is so formed and named, it acquires many powers and rights, which we are next to consider. Some of these are necessarily and inseparably incident to every corporation; which incidents as soon as a corporation is duly erected, are tacitly annexed of course. As, 1. To have perpetual succession. This is the very end of its incorporation; for there cannot be a succession for ever without an incorporation; and therefore all aggregate corporations have a power necessarily implied of electing members in the room of such as go off. 2. To sue or be sued, implead or be impleaded, grant or receive, by its corporate name, and do all other acts as natural persons may. 3. To purchase lands and hold them, for the benefit of themselves and their successors: which two are consequential to the former. 4. To have a common seal. For a corporation, being an invisible body, cannot manifest its intentions by any personal act or oral discourse: it otherwise acts and speaks only by its common seal. For though the particular members may express their private consents to any act, by words, or signing their names, yet this does not bind the corporation; it is the fixing of the seal, and that only, which unites the several assents of the individuals who compose the community, and makes one joint assent of the whole. 5. To make by-laws or private statutes for the better government of the corporation; which are binding upon themselves, unless contrary to the laws of the land, and then they are void. But no trading company is with us allowed to make by-laws which may affect the king's prerogative or the common profit of the people, under penalty of L. 40, unless they be approved by the chancellor, treasurer, and chief justices, or the judges of assize in their circuits; and even though they be so approved, still, if contrary to law, they are void. These five powers are inseparably incident to every corporation, at least to every corporation aggregate: for two of them, though they may be practised, yet are very unnecessary to a corporation sole; viz. to have a corporate seal to testify his sole assent, and to make statutes for the regulation of his own conduct.

Corporations have a capacity to purchase lands for themselves and successors; but they are excepted out of the statute of wills; so that no devise of lands to a corporation by will is good; except for charitable uses, by stat. 43. Eliz. c. 4. which exception is again greatly narrowed by the stat. 9. Geo. II. c. 36. And also, by a great variety of statutes, their privilege even of purchasing from any living grantor is much abridged; so that now a corporation, either ecclesiastical or lay, must have a licence from the king to purchase, before they can exert that capacity which is vested in them

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by the common law: nor is even this in all cases sufficient. These statutes are generally called the statutes of *mortmain*. See MORTMAIN.

The general duties of all bodies politic, considered in their corporate capacity, may, like those of natural persons, be reduced to this single one; that of acting up to the end or design, whatever it be, for which they were created by their founder.

III. How corporations may be dissolved. Any particular member may be disfranchised, or lose his place in the corporation, by acting contrary to the laws of the society, or the laws of the land: or he may resign it by his own voluntary act. But the body politic may also itself be dissolved in several ways; which dissolution is the civil death of the corporation: and in this case their lands and tenements shall revert to the person, or his heirs, who granted them to the corporation; for the law doth annex a condition to every such grant, that if the corporation be dissolved, the grantor shall have the lands again, because the cause of the grant faileth. The grant is indeed only during the life of the corporation; which may endure for ever: but when that life is determined to be the dissolution of the body politic, the grantor takes it back by reversion, as in the case of every other grant for life. The debts of a corporation, either to or from it, are totally extinguished by its dissolution; so that the members thereof cannot recover, or be charged with them, in their natural capacities: agreeable to that maxim of the civil law, *Si quid universitati debetur, singulis non debetur; nec quod debet universitas, singuli debent*.

A corporation may be dissolved, 1. By act of parliament, which is boundless in its operations. 2. By the natural death of all its members, in cases of an aggregate corporation. 3. By surrender of its franchises into the hands of the king, which is a kind of suicide. 4. By forfeiture of its charter, through negligence or abuse of its franchises; in which case the law judges that the body politic has broken the conditions upon which it was incorporated, and therefore the incorporation is void. And the regular course is to bring an information in nature of a writ of *quo warranto*, to inquire by what warrant the members now exercise their corporate power, having forfeited it by such and such proceedings. The exertions of this act of law, for the purposes of the state, in the reigns of king Charles and king James II. particularly by seizing the charter of the city of London, gave great and just offence; though perhaps, in strictness of law, the proceedings in most of them were sufficiently regular: but the judgement against that of London was reversed by act of parliament after the revolution; and by the same statute it is enacted, that the franchises of the city of London shall never more be forfeited for any cause whatsoever. And because by the common law corporations were dissolved, in case the mayor or head officer was not duly elected on the day appointed in the charter or established by prescription, it is now provided, that for the future no corporation shall be dissolved upon that account; and ample directions are given for appointing a new officer, in case there be no election, or a void one, made upon the charter or prescriptive day.

CORPORATION *Act*, is that which prevents any person

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from being legally elected into any office relating to the government of any city or corporation, unless within a twelvemonth before he has received the sacrament of the Lord's Supper according to the rites of the church of England; and which enjoins him to take the oaths of allegiance and supremacy when he takes the oath of office; otherwise his election is void.

CORPOREAL, those qualities which denominate a body. See INCORPOREAL.

CORPOREITY, the quality of that which is corporeal, or his body; or that which constitutes or denominates it such.—The corporeity of God was the capital error of the Anthropomorphites. Some authors reproach Tertullian with admitting a corporeity in the Deity; but it is manifest, by *body* he means no more than *substance*.—The Mahometans reproach the Samaritans at this day, with a belief of the corporeity of God. Many of the ancients believed the corporeity of angels.

CORPSE, a dead body.

If any one, in taking up a dead body, steals the shroud, or other apparel, it will be felony. Stealing only the corpse itself is not felony; but it is punishable as a misdemeanor by indictment at common law.

CORPS, in architecture, is a term borrowed from the French, signifying any part that projects or advances beyond the naked of a wall; and which serves as a ground for some decoration or the like.

CORPS *de Bataille*, is the main body of an army drawn up for battle.

CORPS *de Garde*, a post in an army, sometimes under covert, sometimes in the open air, to receive a body of soldiery, who are relieved from time to time, and are to watch in their turns, for the security of a quarter, a camp, station, &c.—The word is also used for the men who watch therein. It is usual to have, beside the great, a little corps *de garde*, at a good distance before the lines; to be the more readily adverted of the approach of the enemy.

CORPULENCY, the state of a person too much loaded with flesh or fat.

Corpulency is the occasion of various diseases, and particularly the apoplexy. It was held infamous among the ancient Lacedæmonians.

Sennertus mentions a man that weighed 600 pounds, and a maid 36 years of age who weighed 450. Bright of Malden, who died at the age of 29 years in 1750, weighed 616 pounds. Chiapin Vitelli, Marquis of Cerona, a noted Spanish general in his time, from an excessive corpulency, is said to have reduced himself by drinking of vinegar, to such a degree of leanness, that he could fold his skin several times round him.

Castile soap, in the form of a bolus, an electuary, pills, or dissolved in a gill or more soft water, from one to four drachms taken at bed-time, is strongly recommended with a view of reducing corpulency, in a discourse on its nature, causes, and cure, by Malcolm Flemyng, M. D. Lond. 1760. See MEDICINE-Index.

CORPUS, in anatomy, is applied to several parts of the animal structure; as *corpus callosum*, *corpus cavernosum*, &c. See ANATOMY, p. 739. and p. 740.

CORPUS is also used in matters of learning, for several works of the same nature collected and bound together.

Gratian made a collection of the canons of the church, called *corpus canonum*. The *corpus* of the civil law is composed of the digest, code, and institutes. We have also a *corpus* of the Greek poets; and another of the Latin poets.

CORPUS *Christi*, a festival of the church of England, kept on the next Thursday after Trinity Sunday, instituted in honour of the eucharist; to which also one of the colleges of Oxford is dedicated.

CORPUSCLE, in Physics, a minute particle, or physical atom, being such as a natural body is made up of. By this word is not meant the elementary particles, nor the hypostatical principles of chemists; but such particles, whether of a simple or compound nature, whose parts will not be dissolved nor dissipated by ordinary degrees of heat.

CORPUSCULAR PHILOSOPHY, is that way of philosophizing which endeavours to explain things, and to account for the phenomena of nature, by the motion, figure, rest, position, &c. of the corpuscles, or the minute particles of matter.

Mr Boyle sums up the chief principles of the corpuscular hypothesis, which now flourishes under the mechanical philosophy in these particulars:

1. They suppose that there is but one catholic or universal matter, which is an extended, impenetrable, and divisible substance common to all bodies, and capable of all forms.
2. That this matter, in order to form the vast variety of natural bodies, must have motion in some or all its assignable parts; and that this motion was given to matter by God the Creator of all things, and has all manner of direction and tendencies.
3. Matter must also be actually divided into parts, and each of these primitive particles, fragments, or atoms of matter must have its proper magnitude or size, as also its peculiar figure or shape.
4. They suppose also, that these differently sized and shaped particles may have as different orders and positions, whereof great variety may arise in the composition of bodies.

CORRADINI DE SEZZA (Peter Marcellinus), a learned civilian and cardinal, born at Sezza, in 1658, acquired the esteem and confidence of Clement XI, and died at Rome in 1743. He was the author of a learned and curious work entitled, "*Verus Latium profanum et sacrum*," 2 vols. folio; and a history of Sezza, in 4to.

CORRADO (Sebastian), an Italian grammarian of the 16th century, taught the Greek and Latin tongues at Reggio, where he formed an academy of polite literature; and at length removed to Bologna, in order to be professor of those languages. He wrote several works, the most esteemed of which are, "*Questura in qua Ciceronis vita refertur*," an excellent performance; and, "*de Lingua Latina*." He died in 1556.

CORRECTION, in printing, the act of retrenching the faults in a work; or the reading which the corrector gives the first proofs, to point out and amend the faults, to be rectified by the compositor.

The corrections are placed on the margin of each page, right against the line where the faults are found. There are different characters used to express different corrections, as D or *d*, *dele*, for any thing to be effaced or left out. When any thing is to be inserted,

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Corrector the place is marked in the line with a caret, and the insertion added in the margin. When a word, syllable, &c. is to be altered, it is erased out of the proof, and that to be put in its room written in the margin; always observing, if there be several mistakes in the same line, that the corrections in the margin be separated by little bars, or strokes, |. If a space be omitted, its place is marked with a caret, and the margin with *. If a space be wrong placed, as in the middle of a word, the two parts are connected with a curve, and the same character put in the margin. If a letter be inverted, it is expressed on the margin with 9. If any thing be transposed, it is marked thus: *The shortest [are the] follies best*; for *the shortest follies are the best*; and in the margin is added *tr.* in a circle. If Roman characters are to be changed for Italic, or *vice versa*, a line is drawn under them thus, and *Roman* or *Italic* added in the margin; if to capitals, a double line. If a word or sentence is entirely omitted, the place is marked with a caret, and in the margin is inserted the word *out*. If the letters of a word stand too far asunder, a line is drawn under them, and in the margin is put a crooked line or hook, thus.

CORRECTOR, in general, denotes something that mends the faults or bad qualities of others.

CORRECTOR of the Staple, a clerk belonging to the staple, whose business is to write down and record the bargains that merchants make there.

CORRECTOR, in medicine or pharmacy, an ingredient in a composition, which guards against or abates the force of another.

CORREGIDOR, the name of an officer of justice in Spain, and countries subject to the Spanish government. He is the chief judge of a town or province.

CORREGIO. See ALLEGRI.

CORRELATIVE, something opposed to another in a certain relation. Thus father and son are correlatives. Light and darkness, motion and rest, are correlative and opposite terms.

CORRIGIOLA, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 54th order, *Miscellaneæ*. The calyx is pentaphyllous; the petals five: and one three cornered seed.

CORROBORANTS, or **CORROBORATIVE Medicines**. See STRENGTHENERS.

CORROSION, in a general sense, the action of gnawing away, by degrees, the continuity of the parts of bodies.

CORROSION, in chemistry, an action of bodies, by means of proper menstrua, that produces new combinations, and a change of their form, without converting them to fluidity.

CORROSIVE SUBLIMATE MERCURY. See CHEMISTRY-Index.

CORRUGATOR MUSCLE. See ANATOMY, *Table of the Muscles*.

CORROSIVES, in surgery, are medicines which corrode whatever part of the body they are applied to, such as burnt alum, white precipitate of mercury, white vitriol, red precipitate of mercury, butter of antimony, lapis infernalis, &c.

CORRUPTICOLÆ, a sect who rose out of the Monophysites in Egypt about the year 519, under their chief Severus, the pretended patriarch of Alexandria.

Their distinguishing doctrine, whence they derived their name, was, that the body of Jesus Christ was *corruptible*; that the fathers had owned it; and that to deny it was to deny the truth of our Saviour's passion.

On the other hand, Julian of Halicarnassus, another Eutychian, a refugee, as well as Severus, in Alexandria, maintained that the body of Jesus Christ had been always incorruptible; that to say it was corruptible, was to make a distinction between Jesus Christ and the Word, and by consequence to make two natures in Jesus Christ.

The people of Alexandria were divided between the two opinions; and the partisans of Severus were called *corrupticolæ*, q. d. worshippers of something *corruptible*: sometimes they were denominated *corruptibiles*; and the adherents of Julian *incorruptibiles* or *phantastice*. The clergy and secular powers favoured the first; the monks and the people the latter.

CORRUPTION, the destruction, extinction, or at least cessation for a time, of the proper mode of existence of any natural body. See PUTREFACTION.

CORRUPTION of Blood, in law, one of the consequences of an attainder; and is both upwards and downwards; so that an attainted person can neither inherit lands or other hereditaments from his ancestors, nor retain those he is already in possession of, nor transmit them by descent to any heir; but the same shall escheat to the lord of the fee, subject to the king's superior right of forfeiture; and the person attainted shall also obstruct all descents to his posterity, wherever they are obliged to derive a title through him to a remoter ancestor. See ATTAINDER.

This is one of those notions which our laws have adopted from the feudal constitutions, at the time of the Norman conquest; as appears from its being unknown in those tenures which are indisputably Saxon, or Gavel kind; wherein, though by treason, according to the ancient Saxon laws, the land is forfeited to the king, yet no corruption of blood, no impediment of descents, ensues; and on judgment of mere felony, no escheat accrues to the lord. But, by the law of England, derived as above, a man's blood is so universally corrupted by attainder, that his sons can neither inherit to him nor to any other ancestor, at least on the part of their attainted father.

This corruption of blood cannot be absolutely removed but by authority of parliament. The king may excuse the public punishment of an offender; but cannot abolish the private right which has accrued, or may accrue, to individuals as a consequence of the criminal's attainder. He may remit a forfeiture in which the interest of the crown is alone concerned; but he cannot wipe away the corruption of blood; for therein a third person hath an interest, the lord who claims by escheat. If therefore a man hath a son, and is attainted, and afterwards pardoned by the king: this son can never inherit to his father, or father's ancestors; because his paternal blood, being once thoroughly corrupted by his father's attainder, must continue so: but if the son had been born after the pardon, he

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tions,

Blackst.
Comment.

Corfair
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Corfica.

might inherit; because, by the pardon, the father is made a new man, and may convey new inheritable blood to his after-born children.

This corruption of blood, thus arising from feudal principles, but perhaps extended farther than even these principles will warrant, has been long looked upon as a peculiar hardship: because the oppressive parts of the feudal tenures being now in general abolished, it seems unreasonable to reserve one of their most inequitable consequences; namely, that the children should not only be reduced to present poverty (which however severe, is sufficiently justified upon reasons of public policy), but also be laid under future difficulties of inheritance, on a count of the guilt of their ancestors. And therefore in most (if not all) of the new felonies treated by Parliament since the reign of Henry VIII. it is declared that they shall not extend to any corruption of blood: and by the statute 7 Anne c. 21. (the operation of which is postponed by the statute 17 Geo. II. c. 39.) it is enacted, that after the death of the late pretender and his sons, no attainder for treason shall extend to the disinheriting any heir, nor the prejudice of any person, other than the offender himself; which provisions have indeed carried the remedy farther than was required by the hardship above complained of; which is only the future obstruction of descents, where the pedigree happens to be deduced through the blood of an attainted ancestor.

CORSAIR, a pirate or person who scours the seas especially the Mediterranean, with a vessel armed for war, without commission from any prince or power, to plunder merchant vessels. The word comes from the Italian *corsare*, of *corso*, or a *curfibus*, by reason of their courses, or excursions—The name is commonly given to the piratical cruisers of Barbary, who had their rise about the beginning of the 16th century.

A *corfair* is distinguished from a *privateer* in this, that the latter does it under a commission, and only attacks the vessels of those at war with the state whence his commission is derived. The punishment of a corfair is to be hanged, without remission; whereas privateers are to be treated as prisoners of war. All corfair vessels are good prizes.

CORSELET, a little cuirass: or according to others, an armour or coat made to cover the whole body, anciently worn by the pike-men, usually placed in the front and flanks of the battle, for the better resisting the enemy's assaults, and guarding the soldiers placed behind them.

CORSICA, (anc. geog.) an island situated in that part of the Mediterranean anciently called the *Sea of Liguria*, in length from north to south 150 miles, and where broadest 50, (Pliny). The ancient inhabitants were the Phocenses, (Herodotus); from which they removed to Massilia. To them succeeded the Ligurians and Hispani, as appears from the similitude of rites and customs: afterwards two Roman colonies, one by Marius, the other by Sylla. To the south it is separated from Sardinia by a narrow strait called *Tarpeus*, or *Fossa*, (Pliny); sixty stadia or about seven miles in breadth, (Strabo). It was famous for its barren rocks, its woods, and its honey; which last was reckoned noxious, from the great plenty of yew-trees, ac-

ording to Diodorus Siculus and Virgil. *Corfi* was the name of the people, (Livy): *Cyrnaeus*, the epithet, (Virgil).—The island still retains its ancient name *Corfica*; situated between 8 and 10 degrees of east longitude, and between 41 and 43 degrees of north latitude. It was formerly subject to Genoa; though the natives for many years disputed their right. The island is now in the hands of the French; and have lately, in consequence of the revolution in France, been admitted to a participation of all the rights and privileges of free citizens.

CORSNED, or MORSEL OF EXECRATION, a species of trial or purgation * anciently in use among us, * See Trial. and which probably arose from an abuse of revelation in the dark ages of superstition. It consisted of a piece of cheese or bread, about an ounce in weight, which was consecrated with a form of exorcism; desiring of the Almighty that it might cause convulsions and paleness, and find no passage if the man was really guilty; but might turn to health and nourishment if he was innocent; as the water of jealousy among the Jews was, by God's especial appointment, to cause the belly to swell, and the thigh to rot, if the woman was guilty of adultery. This corsned was then given to the suspected person, who at the same time also received the holy sacrament: if indeed the corsned was not, as some have suspected, the sacramental bread itself; till the subsequent invention of transubstantiation preserved it from profane uses with a more profound respect than formerly. Our historians assure us, that Godwin, Earl of Kent, in the reign of King Edward the Confessor, abjuring the death of the king's brother, at last appealed to his corsned, "*per buccellam deglutendam abjuravit*," which stuck in his throat and killed him. This custom has been long since gradually abolished, though the remembrance of it still subsists in certain phrases of abjuration retained among the common people: as, "I will take the sacrament upon it; May this morsel be my last;" and the like.

CORT (Cornelius), a celebrated engraver, was born at Hoorn in Holland in 1536. After having learned the first principles of drawing and engraving, he went to Italy to complete his studies, and visited all the places famous for the works of the great masters. At Venice he was courteously received by Titian; and engraved several plates from the pictures of that admirable painter. He at last settled at Rome, where he died 1578, aged 42. According to Basan, he was "the best engraver with the burin or graver only that Holland ever produced. We find in his prints," adds he "correctness of drawing, and an exquisite taste." He praises also the taste and lightness of touch with which he engraved landscapes, and that without the assistance of the point. It is no small honour to this artist, that Agostino Carracci was his scholar, and imitated his style of engraving rather than that of any other master. His engravings are very numerous (151 according to Abbé Marolles), and by no means uncommon.

CORTES of SPAIN, a term purely Spanish, signifying the *courts* i. e. the states, or assembly of the states, at Madrid.

CORTES, or CORTEZ, (Ferdinand,) a Spanish general, famous for the conquest of Mexico, and other victories

Corfned
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Cortez.

Cortex
Cortusa.

victories over the natives of South America; but infamous for the cruelties he committed upon the vanquished, without regard to rank, age, or sex. It probably was on this account he was but coolly received on his return to Europe by his royal master Charles le Quint: It is even asserted that the emperor asked him who he was? to which Cortez replied; "I am the man who gave you more provinces than your ancestors have left you towns." Died in 1554, aged 63. See MEXICO.

CORTEX, in botany, the rind or coarse outer bark of plants. The organization of the outer and inner barks, which differ principally in the fineness of their texture, is particularly explained under the article PLANTS.

Wounds of the bark, and its separation from the wood, whether naturally or artificially made, are easily cured, and made to unite again by proper care. If sections be made in the rinds of the ash and sycamore of a square figure, three sides cut, and the fourth uncut, and the whole be afterwards bound round with a pack-thread, it will all unite again, only leaving a scar in each of the three sides where it was cut. If several parts of the bark of either of these trees be cut off, and entirely separated from the tree; some shallower, leaving a part of the bark on, and others deeper, to the wood itself; these pieces being again put into their places, and bound on with a pack-thread, will not indeed unite, but a fresh bark will grow in their places, and thrust them away: but if they be first carefully laid on in the exact direction in which they originally grew, and then the whole part beyond the wound on every side covered with a large plaster of diachylon, or the like, and this bound over with pack-thread to keep all firmly in their places, the pieces of bark, whether cut off shallower or deep down to the very wood of the tree, will firmly unite themselves to the places where they originally grew. This cure will be performed in about three weeks; but the outer rind of the separated pieces will not be plump, but somewhat shrivelled; the edges also will recede somewhat from their original place; so that there remains a sort of scar all round. These experiments are best made in the spring season; for in the autumn and winter, the sap arising but weakly, the parts that should unite wither before that is brought about. The success of these experiments has made some think that the whole branch of a tree separated and bound on again might unite with the rest. But the experiments that have been made in the most favourable manner for such a trial have all proved vain, the branch cut off withering always in a few days, however well united and carefully kept on.

CORTEX Peruvianus. See CINCHONA.

CORTEX Winteranus. See WINTERA.

CORTONA (Pietro da). See BERETINI.

CORTONA, a very ancient town of Italy, mentioned by many of the Roman historians. It was originally called Corton, and lay to the northward of the lake Trasymenus. It still retains the name of Cortona. E. Long. 13. O. N. Lat. 53. 15.

CORTONESE (Pietro Palo). See GOBBO.

CORTUSA, BEAR'S-EAR SANICLE; A genus of the monogynia order, belonging to the pentandria class of

plants, and in the natural method ranking under the 21st order, *Præia*. The corolla is wheel-shaped, with its throat like an elevated ring; the capsule unilocular, oval, and quinquevalved at the top. There are two species, both of them very low, flowery, herbaceous perennials, crowned by umbels of monopetalous, wheel-shaped flowers, of a fine red colour. They are natives of mountainous rocky parts abroad, so must have a dry lean soil; or they may be kept in pots of dry sandy earth placed in the shade, and in summer must be duly watered; and their propagation here is by slipping the roots in October.

CORRUNNA, or GROYNÉ, a port-town of Gallicia in Spain, situated on a fine bay of the Atlantic ocean, about 32 miles north of Compostella: W. Long. 9. O. and N. Lat. 43. O.

CORUS, OMER, HOMER, or CHOMER, in the Jewish antiquities, a measure containing 10 baths or 75 gallons and five pints, as a measure of things liquid, and 32 pecks and 1 pint as a measure for things dry. The *corus* or *omer* was most commonly a measure for things dry; and the greatest that was used among the Jews. It contained, according to the rabbins, 10 ephahs or 30 sata or seahs. *Corus* is the most usual term in the historical writers, and *omer* or *chomer* among the prophets.

Corus is also used in some of our old writers for eight bushels or a quarter; *decem coros tritici, five decem quarteria*.

CORUSCATION, a glittering or gleam of light issuing from any thing. It is chiefly used for a flash of lightning darting from the clouds in time of thunder.

There is a method of producing artificial coruscations, or sparkling fiery meteors, which will be visible not only in the dark but at noon-day, and that from two liquors actually cold. The method is this. Fifteen grains of solid phosphorus are to be melted in about a drachm of water; when this is cold, pour upon it about two ounces of oil of vitriol; let these be shaken together, and they will at first heat, and afterwards they will throw up fiery balls in great number, which will adhere like so many stars to the sides of the glass, and continue burning a considerable time; after this, if a small quantity of oil of turpentine is poured in, without shaking the vial, the mixture will of itself take fire, and burn very furiously. The vessel should be large, and open at the top.

Artificial coruscations may also be produced by means of oil of vitriol and iron, in the following manner: Take a glass body capable of holding three quarts; put into this three ounces of oil of vitriol and twelve ounces of water; then warming the mixture a little, throw in, at several times, two ounces or more of clean iron filings; upon this an ebullition and white vapours will arise: then present a lighted candle to the mouth of the vessel, and the vapour will take fire, and afford a bright fulmination or flash like lightning. Applying the candle in this manner several times the effect will always be the same; and sometimes the fire will fill the whole body of the glass, and even circulate to the bottom of the liquor; at others, it will only reach a little way down its neck. The great caution to be used in making this experiment is the

Corrunna
Corusca-
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Corvorant the making the vapour of a proper heat : for, if too cold, few vapours will arise ; and, if made too hot, they will arise too fast, and will only take fire in the neck of the glass, without any remarkable coruscation.

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Corvus.

CORVORANT, formerly written CORMORANT.
See PELICANUS.

CORVUS, the RAVEN or CROW kind, in ornithology ; a genus of birds of the order of picæ, the distinguishing characteristics of which are these : The beak is convex and cultrated ; the nostrils are covered with bristly feathers ; the tongue is forked and cartilaginous ; and the feet are of the walking kind. The species are 19. The most remarkable are :

1. The corax, or raven of English authors, weighs three pounds, and is about two feet two inches in length, the colour is black, finely glossed with a rich blue ; the belly excepted, which is of a dusky colour. They are very docile birds, and may be trained up to fowling like hawks ; to fetch and carry like spaniels ; they may be taught to speak like parrots ; and, what is most extraordinary of all, they may be taught to imitate the human voice in singing. They have a great propensity to pilfer, often hiding things of value to the great loss of the owner, without use to themselves. They frequent the neighbourhood of great towns, where they are useful in devouring the carcases and filth which would otherwise prove a nuisance. They, however, also destroy many living animals ; such as rabbits, young ducks, and chickens, and not unfrequently lambs which have been dropped in a weak state. In clear weather they fly in pairs to a great height, making a deep loud noise, different from the common croaking. Their scent is remarkably good ; and they are very long lived. The quills of ravens sell for 12s. per hundred, being of great use in tuning the lower notes of an harpichord when the wires are set at a considerable distance from the sticks.—The raven makes its nest early in the spring, laying 5 or 6 eggs, of a pale bluish-green colour spotted with brown. With us it builds in trees ; but in Greenland and Iceland makes its nest in the holes of rocks, composing it of roots and twigs, together with the bones they have picked, and lining it with hair, moss, &c. The flesh of these birds, rank and unfavoury as we may well suppose it, is eaten in Greenland by many of the natives, who also use the skins as a warm under-covering.

2. The corone, or carrion-crow, in the form of its body agrees with the raven ; also in its food, which is carrion and other filth. It will also eat grain and insects ; and like the raven will pick out the eyes ; for which reason it was formerly distinguished from the rook, which feeds entirely on grain and insects, by the name of the *gor*, or *gor-crow*. Virgil says that its croaking foreboded rain ;

Tum cornix plena pluviam vocat improba voce.

It was also thought a bird of bad omen, especially if it happened to be seen on the left hand :

Sæpe sinistra cava prædixit ab ilice cornix

England breeds more of this kind of birds than any other country in Europe. In the 24th of Henry VIII. they were grown so numerous, and thought to be so prejudicial to the farmer, that they were considered as an evil worthy of parliamentary redress ; an act was passed for their destruction, in which rooks and choughs

were included. Every hamlet was to provide crow-nets for 10 years ; and all the inhabitants were obliged at certain times to assemble during that space to consult of the proper means for extirpating them. But though the crow abounds thus in Britain, it is so rare in Sweden, that Linnæus speaks of it only as a bird that he once knew killed there. It lays the same number of eggs as the raven, and of the same colour : immediately after deserting their young, they go in pairs. Both these birds are often found white or pied ; an accident that befalls black birds more frequently than any others. Mr Pennant says, he has observed one entirely of a pale brown colour, not only in its plumage, but even in its bill and feet. The crow weighs about 20 ounces. Its length is 18 inches ; its breadth two feet two inches.

Concerning these birds we have the following curious anecdote in Mr Edward's natural history*. "The reverend Mr Robinson rector of Ousby in Westmoreland and Cumberland, says, 'that birds are natural planters of all sorts of wood and trees. They disseminate the kernels upon the earth, which like nurseries bring them forth till they grow up to their natural strength and perfection.' He says, 'About 25 years ago, coming from Rosecastle early in the morning, I observed a great number of crows very busy at their work upon a declining ground of a mossy surface ; I went out of my way on purpose to view their labour, and I found they were planting a grove of oaks. The manner of their planting was thus ; they first made little holes in the earth with their bills, going about and about till the hole was deep enough ; and then they dropped in the acorn, and covered it with earth and moss. The season was at the latter end of autumn when all seeds are full ripe. Mr Robinson seems to think that Providence had given the crows this instinct solely for the propagation of trees ; but I imagine it was given them principally for their own preservation, by hiding provision in time of plenty, in order to supply them in a time of scarcity : for it is observed in tame pies and daws kept about houses, that they will hide their meat when they have plenty of it, and fetch it from their hiding-places when they want. So that such an instinct in these birds may answer a double purpose ; both their own support in times of need, and the propagation of the trees they plant : for wherever they hide a great number of nuts or grains in the earth, we cannot suppose they find them all again ; but that as many will remain in the plot of ground they make use of, as can well grow by one another."

3. The frugilegus, or rook, is the corvus of Virgil ; no other species of this kind being gregarious.

E passu decedens agmine magno

Corvorum inrupit densis exercitus alis.

A very natural description of the evening return of these birds to their nests.

The rook differs not greatly in its form from the carrion crow : the most remarkable difference is in the nostrils and root of the bill ; which parts in the crow are well clothed with feathers, but in the rook are bare, or covered only with some bristly hairs. This arises from its thrusting the bill into the earth continually, after the various worms and erucæ of insects, on which it feeds : for it does not live on carrion, like

the

Corvus.

* Vol. V.
Pref. xxxv.

Corvus.

the last species of ravens. Besides insects, it also feeds on all sorts of grain, to some inconvenience perhaps to the husbandman, but no doubt doubly repaid by the good done him in extirpating the maggot of the chaferbeetle, which in some seasons destroys whole crops of corn by feeding on the roots. The rook is a gregarious bird, sometimes being seen in immense flocks, so as to almost darken the air. These flights they regularly perform morning and evening, except in breeding-time, when the daily attendance of both male and female is required for the use of incubation, or feeding the young; for it is observed that they do both by turns. As these birds are apt to form themselves into societies, such places as they frequent during the breeding-time are called *rookeries*; and they generally choose a large clump of the tallest trees for this purpose; but make so great a litter, and such a perpetual chatter, that nothing but habit and a length of time can reconcile one to the noise. The eggs are like those of crows, but less, and the spots larger. They begin to build in March, and after the breeding-season forsake their nest-trees, going to roost elsewhere, but have been observed to return to them in August: in October they repair their nests. In Britain they remain the whole year; yet we are told that both in France and Silesia they are birds of passage. Whether they migrate or not in Sweden, we are not told; but Linnæus talks of their building there. The young birds are accounted good eating, especially if skinned and put in a pie.

4. The cornix, or Royston crow, pretty much resembles the rook, feeding on insects, and flying together in great flocks. In England it is a bird of passage, visiting that kingdom in the beginning of winter, and leaving it with the woodcocks. In the maritime parts they feed on crabs and shell-fish. They are very common in Scotland; in many parts of the Highlands, and in all the Hebrides, Orkneys, and Shetland, it is the only species of genuine crow; the carrion and rook being unknown there. It breeds and continues in those parts the whole year round. In the Highlands, they breed indifferently in all kinds of trees: lay six eggs, have a shriller note than the common crows; are much more mischievous; pick out the eyes of lambs, and even of horses when engaged in bogs. They are, therefore, in many places proscribed, and rewards given for killing them. For want of other food these birds will eat cran-berries or other mountain berries.

Plate
CXLIX.

5. The dauricus, or white-breasted crow, is in length about 12 inches: the bill is black; the head and throat are black, glossed with blue; the neck and breast white; the rest of the body, wings, and tail, blue black; the legs of a lead-colour: the claws black. The specimen figured by Buffon came from Senegal; but is by no means confined to that quarter. Pallas describes the same species, which he says came early in the spring in great flights from China, and the southern Monguls country, into the parts about the lake Baikal, but most frequent about the towns and villages on the river Lena, in which part the jackdaws and Royston crows are very seldom seen. It is said they are likewise found in vast numbers in the island of Johann, where they live chiefly on insects and fruits, and make their nests in trees.

6. The monedula, or jack-daw, weighs nine ounces; the length thirteen inches, the breadth twenty-eight. The head is large in proportion to its body; which, Mr Willoughby says, argues him to be ingenious and crafty. The irides are white: the breast and belly are of a dusky hue inclining to ash-colour: the rest of the plumage is black, slightly glossed with blue: the claws very strong and hooked. It is a docile and loquacious bird. Jack-daws breed in steeples, old castles, and in high rocks, laying five or six eggs. Sometimes they have been known to breed in hollow-trees near a rookery, and join those birds in their foraging parties. In some parts of Hampshire, they make their nests in rabbit holes: they also build in the interstices between the upright and transverse stones of Stonehenge; a proof of the prodigious height of that stupendous antiquity, for their nests are placed beyond the reach of the shepherd boys, who are always idling about this spot. They are gregarious birds; and feed on insects, grain, and seeds.—These birds are frequently brought up tame: they have a practice of hiding that part of their food which they cannot eat; and often, along with it, they secrete small valuables, thereby sometimes occasioning injurious suspicions of theft in servants or others not guilty.

7. The glandarius, or jay, is one of the most beautiful of British birds. The weight is between six and seven ounces: the length 13 inches. The forehead is white streaked with black; the head is covered with very long feathers, which it can erect at pleasure into the form of a crest: the whole neck, back, breast, and belly, are of a faint purple dashed with grey; the covert-feathers of the wings are of the same colour. The first quill-feather is black: the exterior webs of the nine next are ash-coloured; the interior webs dusky; the six next are black, but the lower sides of their exterior webs are white tinged with blue; the two next wholly black; the last of a fine bay colour tipped with black. The lesser coverts are of a light bay: the greater covert feathers most beautifully barred with a lively blue, black, and white: the rest are black: the rump is white. The tail consists of twelve black feathers. The feet are of a pale brown; the claws large and hooked.—Jays build chiefly in woods, making their nest of sticks, fibres of roots, and tender twigs; and lay five or six eggs, of the size of a pigeon's, cinereous olive, marked with pale brown. The young keep with the old ones till the next pairing time in spring; when they choose each his mate to produce their future progeny. In general they feed on acorns, nuts, seeds, and fruits of all kinds; but will sometimes destroy young chickens and eggs, and will also take away birds that have been caught in a trap or entangled with birdlime. They are often kept in cages, and will talk pretty well; but then lose all their beauty so conspicuous in the wild state.

8. The caryocatactes, or nutcracker, is somewhat less than the jack-daw: the bill is strong, straight, and black: the colour of the whole head and neck, breast and body, of a rusty brown: the crown of the head and rump are plain; the other parts marked with triangular white spots: the wings are black; the coverts spotted in the same manner as the body: the tail is rounded at the end, black tipped with white: the vent-feathers:

Corvus.

Corvus.

feathers are white; the legs dusky. We find these birds scattered in many parts of Europe, but no where so plenty as in Germany; they are found also in Sweden and Denmark, where they frequent the mountainous parts. Sometimes they come in vast flocks into France, especially Burgundy. They visit England very seldom; are also found in North America, but not near the sea-coasts. One has been brought from Kamtschatka by the late voyagers.—In manners this bird is said to resemble the jay, laying up a store of acorns and nuts. In some parts it keeps chiefly in the pine forests, on the kernels of which it then feeds; but is said frequently to pierce the trees like the woodpecker, for which the bill seems not unapt. It makes its nest in holes of trees. Klein mentions two varieties, one smaller than the other; the largest, he says, breaks the nuts to pieces, and the other pierces them. Both feed at times on wild berries and insects.

9. The pica, or magpie, is in length above 18 inches, and weighs 8 or 9 ounces. The bill is black: the irides are hazel: the scapulars, and all the under parts from the breast, are white; the rest of the plumage, wings, and tail, black, glossed with green, purple, and blue, in different lights: the eleven first quills are white in the middle on the inner web, lessening by degrees as they advance inwards: the tail is very cuneiform, the two middle feathers being near 11 inches in length, and the outmost only 5 inches and a half: the legs are black. We can form no judgment of the beauties of this bird, from those dirty mutilated specimens which we see exposed daily in a wicker cage at every stall. It is only in a state of nature that they can be found; and whoever views them in this state, will do so with astonishment: for though the colours, at a distant view, seem to be mere black and white, yet the splendor that meets in every new situation the eye of the beholder, will oblige him to own that there is not a more beautiful bird in Britain. In these parts it is every where common. Mr Latham has been able to trace this bird no farther south than Italy on the European continent; and to the north, Sweden and Denmark. Forster met with it at Madeira; and it is also seen in America, but not common, and is a bird of passage in those parts. At Hudson's Bay it is called by the Indians *Oue-ta-kee-aske* which signifies *Heart-Bird*; but for what reason does not appear. In manners it approaches to the crow, feeding almost on every thing in turn, both animal and vegetable; and like that will kill young ducks and chickens, and suck the eggs. It builds its nest with art, making a thorny cover at top, leaving a hole on the side for admittance: lays six or seven pale greenish eggs, thickly spotted with black. It is a crafty bird in every state, and if brought up young, becomes exceedingly familiar, and will talk a great many sentences, as well as imitate every noise within hearing, like a parrot, but not near so plain.

10. The graculos, or red-legged crow, is but thinly scattered over the northern world: no mention is made of it by any of the Faunists; nor do we find it in other parts of Europe except Britain and the Alps. It is produced in the island of Canadia in Asia; and it visits Egypt towards the end of the inundation of the Nile. Except in Egypt, it affects mountainous and rocky

places; builds its nest in high cliffs or ruined towers; and lays four or five eggs, white spotted with a dirty yellow. It feeds on insects, and also on new-fown corn. They commonly fly high, make a shriller noise than the jack-daw, and may be taught to speak. It is a very tender bird, and unable to bear very severe weather; is of an elegant, slender-make; active, restless, and thieving; much taken with glitter, and so meddling as not to be trusted where things of consequence lie. It is very apt to catch up bits of lighted sticks; so that there are instances of houses being set on fire by its means; on which account Camden calls it *incendiaria avis*. It is found in Cornwall, Flintshire, Caernarvonshire, and Anglesea, in the rocky cliffs along the shores. It is also found in Scotland as far as Strathnavern, and in some of the Hebrides. Its colour is wholly black, beautifully glossed over with blue and purple: the legs and bill are of a bright orange colour inclining to red: the tongue is almost as long as the bill, and a little cloven: the claws are large, hooked, and black.

11. The cristatus, or blue jay, is much smaller than the common jay. The bill is black and above an inch long: the head is crested and blue: a streak of the sides of the head and throat are of a bluish white, and there is a spot of the same over the eye: hind part of the neck and back is blue: the wings and tail are the same; all the feathers of the last, except the two middle ones, tipped with white; the feathers of both it and the wings elegantly barred with black, and the greater coverts and second quills tipped with white: the breast is of a blossom colour: the belly and under tail coverts white: the legs are dusky brown: the tail is nearly as long as the rest of the bird. The colours of the female are less bright than those of the male—This species is said to be peculiar to North America, but not seen farther north than the town of Albany. It builds in swamps, and has a soft delicate note. Its food is hazel-nuts, chesnuts, and such like, which it breaks by placing between the feet, and pecking with the bill till the shell gives way. It is also very fond of maize; and being a gregarious bird, often unites into flocks of 20,000 at least, which alighting on a field of 10 or 12 acres soon lay waste the whole: hence it is reckoned the most destructive bird in that country. They will often take up with snails and vermin thro' necessity, but not while any thing they like better is to be got at. They are not accounted good to eat.

12. The canadensis is in length 9 inches, and weighs two ounces. The bill is blackish, and not quite an inch long: the irides are black: the forehead and throat are of a dirty yellow white; the hind-head and sides of blackish brown: the upper parts of the body are brown; beneath pale ash, palest on the breast: the quills and tail are brown, tipped with white: tail is a little wedged: the legs and claws are blackish. These birds inhabit Canada; and are frequent near Hudson's Bay, where they are called *Whiskijohn* and *Whiskijack*. They breed early in the spring; build in pine trees; and have two, rarely three young at a time. The eggs are blue. They are not gregarious. Their food is black moss, worms, and flesh. They are very bold pilfering birds, stealing from the traveller even salt meat, and devouring often the bait from the traps set

Corvus.

Cicadae.



Corvus Dauricus.



Coracias.

Chinese.



Blue striped.



Chrysomela.



Crotalus Horridus.



Coluber Punctatus.



Corvus
||
Coryban-
tes.

for the martins, as soon as the persons who set them turn their backs. They lay up stores for winter; at which time they are seldom seen unless near habitations. They do not bear confinement well. What natural note they have, we are not told; but they are said to act the mocking bird, in imitating that of others.—There are near 30 other species.

CORVUS (*Raven*), in astronomy, a constellation of the southern hemisphere; whose stars in Ptolemy's Catalogue are 7; in Tycho's as many; in the British Catalogue 9.

CORVUS, in Roman antiquity, a military engine, or rather gallery, moveable at pleasure by means of pulleys; chiefly used in boarding the enemy's ships to cover the men. The construction of the corvus was as follows: They erected on the prow of their vessels a round piece of timber of about a foot and an half diameter, and about 12 feet long: on the top of which they had a block or pulley. Round this piece of timber they laid a stage or platform of boards, four feet broad, and about 18 feet long, which was well framed and fastened with iron. The entrance was long-ways, and it is moved about on the above mentioned upright piece of timber as on a spindle, and could be hoisted up within six feet of the top: about this was a sort of parapet knee-high, which was defended with upright bars of iron sharpened at the end, and towards the top there was a ring, by the help of which and a pulley or tackle, they raised or lowered the engine at pleasure. With this moveable gallery they boarded the enemy's vessels (when they did not oppose side to side,) sometimes on their bow and sometimes on their stern, as occasion best served. When they had grappled the enemy with these iron spikes, if they happened to swing broadside to broadside, then they entered from all parts; but in case they attacked them on the bow, they entered two and two by the help of this machine, the foremast defending the foreparts, and those that followed the flanks keeping the bows of their bucklers level with the top of the parapet.

CORYATE (Thomas), a very extraordinary personage, who seems to have made himself famous by his whimsical extravagancies, was the son of a clergyman, and born at Oldcombe in Somersetshire in 1577. He acquired Greek and Latin at Oxford; and coming to London, was received into the household of Henry Prince of Wales. If Coryate was not over witty himself, he got acquainted with the wits of that time, and served to exercise their abilities, having more learning than judgment. He was a great peripatetic: for, in 1608, he took a long journey on foot; and after he returned, published his travels under the following strange title. *Crudities hastily gobbled up in five months Travels in France, Savoy, Italy, Rhetia, Helvetia, some parts of High Germany, and the Netherlands*, Lond. 1611, 4to. In 1612 he set out again with a resolution to spend ten years in travelling: he went first to Constantinople; and after travelling over a great part of the East, died of a flux at Surat in the East Indies. Some of the accounts of his peregrinations are to be found in Purchas's Pilgrimages.

CORYBANTES, in antiquity, priests of Cybele, who danced and capered to the sound of flutes and drums. See CROTALUM.

Catullus, in his poem called *Atys*, gives a beautiful

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description of them, representing them as madmen. Accordingly Maximus Tyrius says, that those possessed with the spirit of Corybantes, as soon as they heard the sound of a flute, were seized with an enthusiasm, and lost the use of their reason. And hence the Greeks use the word *κορυβαντιζε* to *corobantize*, to signify a person's being transported or possessed with a devil. See ENTHUSIASM.

Some say that the Corybantes were all eunuchs; and that it is on this account Catullus, in his *Atys*, always uses feminine epithets and relatives in speaking of them.

Diodorus Siculus remarks, that Corybas, son of Jason and Cybele, passing into Phrygia with his uncle Dardanus, there instituted the worship of the mother of the gods, and gave his own name to the priests. Strabo relates it as the opinion of some, that the Corybantes were children of Jupiter and Calliope, and the same with the *Cabiri*. Others say the word had its origin from this, that the Corybantes always walked dancing (if the expression may be allowed) or tossing the head, *καρποπτοντες βασινοισιν*.

CORYBANTICA, a festival held in Crete, in memory of the Corybantes, who educated Jupiter when he was concealed in that island from his father Saturn, who would have devoured him.

CORYCEUM, in antiquity, that part of the gymnasium where people undressed. It was otherwise called *apodyterion*.

CORYCOMACHIA, among the ancients, was a sort of exercise in which they pushed forwards a ball, suspended from the ceiling, and at its return either caught it with their hands, or suffered it to meet their body. Oribasius informs us it was recommended for extenuating too gross bodies.

CORYDALES, in botany, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus, containing the following genera, *viz.* epimedium, hypecoum, leontice, melianthus, pinguicula, and utricularia.

CORYDALES, in botany. See FUMARIA.

CORYLUS, the HAZLE; A genus of the polyanthia order, belonging to the monœcia class of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The male calyx is monophyllous, scale-like, trifid, and uniflorous; there is no corolla; the stamina eight in number: The female calyx diphyllous and lacerated; no corolla; two styles; and an egg-shaped nut. Mr Miller reckons three species, though other botanists make only two. They are all of the large shrub kind, hardy and deciduous; and have several varieties valuable for their nuts, as also for their variety in large wildernesses and shrubbery works. They will prosper in almost any soil or situation, and turn out to good account when growing in coppices to cut as underwood, and as poles for various uses, as hoops, spars, hurdles, handles to husbandry implements, walking sticks, fishing rods, &c. for which purposes they may be cut every 5th, 7th, or 8th year, according to the purposes for which they are designed. The best method of propagating them is by layers, though they may also be raised from the nuts.

The kernels of the fruit have a mild, farinaceous, oily taste, agreeable to most palates. Squirrels and mice are fond of them, as well as some birds, such as jays, nutcrackers, &c. A kind of chocolate has been

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Corymbifera
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prepared from them, and there are instances of their having been formed into bread. The oil expressed from them is little inferior to the oil of almonds; and is used by painters and by chemists, for receiving and retaining odours. The charcoal made of the wood is used by painters in drawing. Some of the Highlanders, where superstition is not totally subsided, look upon the tree itself as unlucky; but are glad to get two of the nuts naturally conjoined, which is a good omen. These they call *cho-chomblaich*, and carry them as an efficacious charm against witchcraft.

Evelyn tells us, that no plant is more proper for thickening of copses than the hazle, for which he directs the following expeditious method. Take a pole of hazle (ash or poplar may also be used), of 20 or 30 feet in length, the heads a little lopped in the ground, giving it a chop near the ground to make it succumb; this fastened to the earth with a hook or two, and covered with some fresh mould at a competent depth, (as gardeners lay their carnations), will produce a great number of suckers, and thicken and furnish a copse speedily.

CORYMBIFERÆ, in botany, the name of an order or division of the compound flowers adopted by Linnaeus after Ray and Vailant, in the former editions of his *Fragments of a Natural Method*. This title in the later editions is changed for *Discoideæ*, another name borrowed from Ray's *Method*, but used in a somewhat different sense.

CORYMBIUM, in antiquity, an ornament of hair worn by the women. Its form was that of a corymbus.

CORYMBIUM, in botany: A genus of the monogamia order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The calyx is diphyllous, uniflorous, and prismatical; the corolla monopetalous and regular; there is one woolly seed below each floret.

CORYMBUS, properly signifies a cluster of ivy berries. Among botanists, is a mode of flowering in which the lesser or partial flower stalks are produced along the common stalk on both sides; and though of unequal lengths, rise to the same height, so as to form a flat and even surface at the top. See *BOTANY*, n^o 273.

CORYNOCARPUS, in botany: A genus of the monogynia order, belonging to the pentandria class of plants. The calyx is a pentaphyllous perianthium; the corolla consists of five roundish, erect, and hollow petals; the stamina five subulated filaments arising from the base of the petals; the antheræ are erect and oblong; the pericarpium a monospermous, turbinat-clavated nut.

CORYPHA, MOUNTAIN PALM, or *Umbrella Tree*, in botany: A genus of the order of *Palmæ*, belonging to the monœcia class of plants. The corolla is tripetalous; the stamina six, with one pistil; the fruit a monospermous plum. There is only one species, the *umbracula*, a native of the West Indies, where it is called *codda pana*. It rises to a considerable height, and produces at the top many large palmated, plaited leaves, the lobes of which are very long, and are placed regularly round the end of a long spiny footstalk, in a manner representing a large umbrella. The flowers are produced on a branched spadix, from a compound

spatha or sheath; they are hermaphrodite, and each consists of one petal, divided into three oval parts, and contains six awl-shaped stamina, surrounding a short slender style, crowned with a simple stigma. The germen is nearly round, and becomes a large globular fruit of one cell, including a large round stone. These plums having a pleasant flavour are held in esteem by the Indians.

CORYPHÆNA, in ichthyology, a genus belonging to the order of thoracici. The head is declined and truncated; the branchiostegæ membrane has six rays; and the back-fin runs the whole length of the back. There are twelve species, most of them natives of foreign seas. The most remarkable are the blue and parrot fishes, described by Mr Catesby.—The head of the first is of an odd structure, resembling that of the spermaceti whale: the mouth is small, each mandible armed with a single row of even teeth, so closely joined that they seem entire bones; the iris of the eye is red. On the back is a long pliant fin, somewhat indented on the edge; behind the gills are two fins, one under the abdomen and another behind the anus. The tail is forked; and the whole fish entirely blue. They are taken on the coasts of the Bahama Islands, and in most of the seas between the tropics. The parrot-fish hath a large mouth, paved as it were with blunt teeth, closely connected, after the manner of the *lupus marinus*. The body is covered with large green scales; the eyes are red and yellow; the upper part of the head brown, the lower part and the gills blue, bordered with a dusky red; a streak of red extends from the throat behind the gills, at the upper end of which is a bright yellow spot. The fins are five in number, one extending almost the length of the back, of a bay or cinnamon colour; there are two behind the gills, blended with black, green, and purplish colours, with the upper edge verged with blue: under the abdomen is another red fin verged with blue: under the anus extends another long narrow green fin, with a list of red through the middle of it; at the basis of the tail on each side is a large yellow spot. The tail is large, forked, and green, with a curved red line running through the middle parallel to the curve, and ending in two points. This fish is more esteemed for beauty than the delicacy of its taste. They are taken on the coasts of Hispaniola, Cuba, and the Bahama Islands.

CORYPHÆUS, in the ancient tragedy, was the chief or leader of the company that composed the chorus: (See *CHORUS*).—The word is formed from the Greek *κορυφή*, "tip of the head." The coryphæus spoke for all the rest, whenever the chorus took part in the action, in quality of a person of the drama, during the course of the acts. Hence coryphæus had passed into a general name for the chief or principal of any company, corporation, sect, opinion, &c. Thus Eustatius of Antioch is called the coryphæus of the council of Nice; and Cicero calls Zeno the coryphæus of the stoics.

CORYZA, in medicine, a catarrh of the nose. See *MEDICINE Index*.

CORZOLA, or *CURSCOLA*, an island in the gulph of Venice, divided from Ragusa in Dalmatia by a narrow strait. E. Long. 18. 0. N. Lat. 42. 35.

COS, or *Coos*, (anc. geog.), a noble island on the coast

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Cos.
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Cos
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Cof-nage.

coast of Caria, in the Hither Asia, fifteen miles to the west of Halicarnassus, a hundred in compass, called *Meropis*; and hence Thucydides joins both names together, *Cos Meropis*: it had a cognominal town *Cos*, but originally called *Astypalea*, mentioned by Homer; with a port locked or walled round, (Scylax, Mela). The island was fruitful, and yielded a generous wine, (Strabo). It boasted of Hippocrates and Apelles; each at the head of his several profession. It was the country of Philetas, an excellent elegiac poet, who flourished in the time of Philip and Alexander: the preceptor of Ptolemy Philadelphus: so thin and light that he was obliged to wear lead to prevent the being blown away by a puff of wind (Aelian, Athenæus); much recommended by Propertius. The *vestes Coae*, made of silk, were famous for their fineness and colour, (Horace, Propertius, Tibullus). In the suburbs of Cos stood the temple of *Æsculapius*, a noble structure, and extremely rich.

COS, the WHETSTONE, in natural history, a genus of vitrescent stones, consisting of fragments of an indeterminate figure, subopaque, and granulated.

Of this genus there are several species, some consisting of rougher, and others of smoother, or even of altogether impalpable particles; and used not only for whet-stones, but also for mill-stones, and other the like purposes.

COS TURCICA, *Turkey-stone*, a species of stones of the garnet kind, belonging to the siliceous class. It is of a dull white, and often of an unequal colour; some parts appearing more compact than others. Its specific gravity is 2.598: it strikes fire with steel, and effervesces with acids. Mr Kirwan found that 100 parts of it contain 25 of mild calcareous earth, and no iron. Cronstedt is of opinion that there are probably two sorts of stones known by this name, as that described by Wallerius neither gives fire with steel nor effervesces with acids. It is used as a whetstone; and those of the finest grain are the best hones for the most delicate cutting tools, and even for razors, lancets, &c.

COSCINOMANCY, the art of divination, by means of a sieve. The word comes from *κ.σ.ιν.ο.ν.ο.ν*, *cf-brum*, "a sieve;" and *μαντια*, *divination*. The sieve being suspended, after rehearsing a formula of words, it is taken between two fingers only; and the names of the parties suspected repeated: he at whose name the sieve turns, trembles, or shakes, is repeated guilty of the evil in question.

This must be a very ancient practice: Theocritus, in his third Idyllion, mentions a woman very skilful in it. It was sometimes also practised by suspending the sieve by a thread, or fixing it to the points of a pair of sheers, giving it room to turn, and naming, as before, the parties suspected; in which last manner *coscinomancy* is still practised in some parts of England. It appears from Theocritus, that it was not only used to find out persons unknown, but also to discover the secrets of those that were known.

CO-SECANT, in geometry, the scant of an arch which is the complement of another to 90°. See GEOMETRY.

COSENAGE, in law, a writ that lies where the trefail, that is, the tritavus, the father of the besail, or great grandfather, being seized in fee at his death of

certain lands or tenements, dies; a stranger enters, and abates; then shall this heir have this writ of cosenage; the form of which see in Fitz. Nat. Br. fol. 221.

COSENING, in law, an offence whereby any thing is done deceitfully, in or out of contracts, which cannot be fitly termed by any especial name. In the civil law it is called *stellionatus*. See STELLIONATE.

COSENZA, the capital of the Hither Calabria, in the kingdom of Naples. E. Long. 16. 35. N. Lat. 39. 15. It is an archbishop's see.

COSHERING, in the feudal customs, a kind of right of the lords to lie and feast themselves and their followers at their tenants' houses. The word *coshering* may perhaps be derived from the old English word *cosbe*, a cot or cottage.

CO-SINE, in trigonometry, the sine of an arch which is the complement of another to 90°. See GEOMETRY.

COSMETIC, in physic, any medicine or preparation which renders the skin soft and white, or helps to beautify and improve the complexion; as lip-salves, cold creams, cerufs, &c.

COSMICAL, a term in astronomy, expressing one of the poetical risings of a star: thus a star is said to rise cosmically when it rises with the sun, or with that point of the ecliptic in which the sun is at that time: and the cosmical setting is when a star sets in the west at the same time that the sun rises in the east.

COSMOGONY, in physics, signifies the science of the formation of the universe. It is formed of *κοσμος*, *the world*, and *γενεσις*, *I am born*.

In our conjectures about the formation of the world there are two principles which we ought never to lose sight of. 1. That of *creation*; for certainly matter could not give itself existence, it must have received it. 2. That of a *Supreme Intelligence* directing this creation, and the arrangement of the parts of matter, in consequence of which this world was formed. See CREATION and EARTH.

COSMOGRAPHY, the description of the world; or the art which teaches the construction, figure, disposition, and relation of all the parts of the world, with the manner of representing them on a plane. The word comes from *κοσμος*, *world*, and *γραφω*, *I describe*.

Cosmography consists chiefly of two parts. *Astronomy*, which shows the structure of the heavens, and the disposition of the stars; and *Geography* which shows those of the earth.

COSMOLABLE (from *κοσμος*, *world*, and *λαμβάνω*, *I take*), an ancient mathematical instrument, serving to measure distances, both in the heavens and on earth. The *Cosmolabe* is in great measure the same with the astrolabe. It is also called *pentacosm*, or the *universal instrument*, by L. Morgard, in a treatise written expressly upon it, printed in 1612.

COSMOLOGY (from *κοσμος*, *world*, and *λογος*, *discourse*), the science of the world in general. This Wolfius calls *general*, or *transcendental cosmology*, and has written a treatise on the subject, wherein he endeavours to explain how the world arises from simple substances; and treats of the general principles of the modifications of material things, of the elements of bodies, of the laws of motion, of the perfection of the world, and of the order and course of nature.

COSMOPOLITE, or COSMOPOLITAN, a term

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Cosmopo-
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Cossacks.

sometimes used to signify a person who has no fixed living or place of abode, or a man who is a stranger nowhere. The word comes from the Greek *κοσμος*, "world," and *πολις*, "city."—One of the ancient philosophers being interrogated what countryman he was? answered, he was a *cosmopolite*, i. e. an inhabitant or citizen of the world.

COSSACKS, a name given to the people inhabiting the banks of the rivers Nieper and Don, near the Black Sea and borders of Turkey. The word implies irregular troops of horse. These people are divided into European and Asiatic Cossacks. The first consist of the Zaporog, who dwell below the cataract of the Dnieper, some on the side next to Russia, and others on the opposite side of that river; the Lower and Upper Cossacks; the Bielogorod Cossacks; and a part of the Don Cossacks. The Asiatic Cossacks are composed of the rest of the Don Cossacks, the Grebin Cossacks, the Yaik Cossacks, and the Western Calmuks, who retiring from those that inhabited the south borders of Siberia under Yaiuki Can, settled upon the Wolga, and are dependent upon Russia.

The Cossacks were known by that name ever since the 948th year of Christ. They dwelt upon mount Caucasus, in the place now called *Gabardy*; and were reduced to the Russian dominion by Prince Mitislav in the year 1021. Many Russians, Poles, and others, who could not live at home, have, at different times, been admitted among the Cossacks; but the latter, abstracted from these fugitives, must have been an ancient and well governed nation.

Towards the beginning of the 16th century, the Zaporog Cossacks fixed their habitations on the spacious plains that extend along the banks of the Dnieper. They had undergone considerable hardships from the incursions of the Tartars, for which they afterwards found means to avenge themselves in an ample manner. The Poles being sensible how serviceable the Cossacks might be in defending them from the ravages of the Tartars, and even of the Russians, proposed to them terms of alliance. In 1562, they solemnly took them under their protection, and engaged to pay them an annual subsidy; in return for which the Cossacks were to keep on foot a sufficient body of troops for the defence of the Polish dominions. With a view to bind them still more strongly by ties of interest, the Poles gave them the whole country between the rivers Dnieper and Neister, and the borders of Tartary. The Cossacks applied themselves with great industry to the cultivation of this fertile spot; so that in a short time it was interspersed with large towns and handsome villages. Besides, they continually harassed the Turks, and did them great damage by their incursions; and, in order to prevent the latter from pursuing them, or making reprisals, they possessed themselves of several small islands in the Dnieper, where they kept their magazines, &c. The hettman or general of the Cossacks was not in the least subordinate to the field-marshal of Poland; but acted in concert with him as an ally, and not as a subject of that republic. But this alliance, though of such manifest advantage to both parties, was not of long duration. The Poles, seeing the vast improvements made by the Cossacks in the country they had given up to them, became envious of them, and actually made an attempt

to bring them into subjection, as we have seen in the history of Poland. In 1648 the Cossacks gained great advantages over them, and next year came to an accommodation, in which they not only preserved their old immunities, but obtained additional privileges. The result of all was, that these Cossacks remained under the protection of Russia; and as their former country was entirely laid waste in the late wars, they settled in the Russian Ukraine, upon receiving formal assurances from the court of Russia, that no alteration should be made in their political constitution, and that no taxes whatever should be laid upon them. The Cossacks, on the other hand, were always to keep in readiness a good body of troops for the service of Russia: but in the year 1708 Mazeppa, their hettman or chief, went over from the Russians to the Swedes; upon which Peter I. resolved to prevent such revolts for the future. To this end, after the battle of Pul-towa, he sent a strong detachment into the above mentioned little islands in the Dnieper, whither the Cossacks had fled with their wives and children, and all their effects; and ordered them all to be put to the sword without distinction, and the plunder to be divided among his soldiers. He likewise sent a great number of men into their country, and caused several thousands of the Cossacks to be carried to the coasts of the Baltic, where they were put to all sorts of hard labour; by which means he in a manner extirpated the whole nation.

What distinguishes the Zaporog Cossacks from all other people is, that they never suffer any women in their settlements, as the Amazons are said not to have suffered any men among them. The women of these Cossacks live in other islands of the Dnieper. They never marry, nor have any family: all their male children are inrolled as soldiers, and the females are left with their mothers. The brother often has children by his sister, and the father by his daughter. They know no laws but those which custom has introduced, founded on their natural wants; though they have among them some priests of the Greek persuasion. They serve in the armies as irregulars; and woe to those who fall into their hands.

The country of these Cossacks, who are an assemblage of ancient Roxelans, Sarmatians, and Tartars, is called the *Ocraine* or *Ukraine*. It lies upon the borders of Russia and Poland, Little Tartary and Turkey, and was anciently a part of Scythia. By virtue of the last treaty settled between Russia and Poland, in 1693, the latter remains in possession of all that part of the Ukraine which is situated on the west side of the Dnieper, and is now but poorly cultivated. That on the east side, inhabited by the Cossacks, is in a much better condition, and extends about two hundred and sixty miles in length, and as many in breadth. It is one continued fertile plain, watered by a great number of fine rivers, diversified with pleasant woods, and yields such plenty of all sorts of grain, pulse, tobacco, honey, and wax, as to supply a great part of the Russian empire with those commodities. Its pastures are exceeding rich, and its cattle very large; but the inhabitants are greatly plagued by locusts, which infest this fine country. The houses in the Ukraine are, like those of the Russians, mostly built with timber.

The

Cossacks.

The Cossacks are tall and well made, generally hawk-nosed, and of a good mien. They are hardy, vigorous, brave, and extremely jealous of what is most valuable in life, their liberty; fickle and wavering, but sociable, cheerful, and sprightly. They are a very powerful people, and their forces consist wholly of cavalry. Their dialect is a compound of the Polish and Russian language: but the latter is the most predominant. They were formerly Pagans or Mahometans; but upon their entering into the Polish service, they were baptized Christians of the Romish communion; and now that they belong to Russia, they profess themselves members of the Greek church.

Each of their towns, with the district belonging to it, is governed by an officer called *ottomann* or *attamann*.

The Don Cossacks, so called from their residence upon the banks of the river Don, greatly resemble those already described. In the year 1559, when the Czar Iwan Basilowitz was emperor of Russia, they voluntarily put themselves under his protection, and are at this time on a pretty equal footing with the other Russian subjects. They have several towns and villages upon the banks of the Don; but are prevented from extending themselves farther up the country, by the scarcity of fresh water and wood in many places. Their chief support is grazing and agriculture, and occasionally robbing and plundering, for which they want neither capacity nor inclination. Every town is governed by a magistrate called *tamann*; and the *tamanns*, with their towns, are under the jurisdiction of two *ottomanns*, who reside at Tcherkasky. The troops of these Cossacks likewise consist entirely of cavalry. In this country all the towns and villages are fortified and encompassed with palisades, to defend them against the incursions of the Calmucs and Kuban Tartars, with whom they are continually at war. The Cossacks, in general, are of great service to garrison towns by way of defence, or to pursue an enemy; but are not so good at regular attacks.

The Sieth Cossacks, who are also called *Haidamacks*, have their particular hettman. They inhabit the Russian, Polish, and Turkish dominions, along the banks of the Dnieper.

The Yaik Cossacks dwell on the south side of the river Yaik; and upon the success of the Russian arms in the kingdom of Astracan, voluntarily submitted to them. In stature they greatly resemble the other Cossacks; though by their Boorish manners of living, and intermarriages with the Tartars, they have not the shape and air peculiar to the rest of their countrymen. Their natural dispositions and customs are, however, nearly the same. Husbandry, fishing, and feeding of cattle, are their principal employments; and, like the other tribes, they let slip no opportunity of making depredations on their neighbours. Their continual wars with the Kara-Kalpacs and the Kasatshaia-Horda oblige them to keep their towns and villages in a state of defence. They are indeed subject to Russian waiwodes, to whom they pay an annual tribute in corn, wax, honey, and cattle; but they have also their particular chiefs, who govern them according to their ancient customs. Though the generality of the Yaik Cossacks profess the Greek religion, yet a great many relics of Mahometanism and Paganism are still found

among them. Being naturally bold and hardy, they make excellent soldiers: and they are not so turbulent as the other Cossacks. They live entirely at peace with the Calmucs and their other neighbours, and even maintain a commercial intercourse with them.

COSSE DE GENISTE, an order of knighthood instituted in 1234, by Louis IX. at his marriage with Margaret of Province. The motto on the collar of this order was, *exaltat humilis*.

COSSET, among farmers, a colt, calf or lamb, brought up by hand without the dam.

COSTA (Christopher a), a celebrated botanist of the 16th century, was born in Africa, of a Portuguese father, and went into Asia, to perfect himself in the knowledge of simples, where he was taken prisoner, but found means to make his escape, and after several voyages, practised physic at Bourgos. He wrote, 1. A Treatise on Indian Drugs and medicines. 2. His Voyages to the Indies. 3. A book in praise of Women; and other works.

COSTAL, an appellation given by anatomists to several parts belonging to the sides: thus we meet with costal muscles, vertebræ, &c.

COSTANZO (Angelo di), an Italian historian and poet, lord of Catalupo, was born in 1507, of a noble and ancient family of Naples, and died about 1591. He wrote, 1. A History of Naples, from 1250 to 1489; the best edition of which is that of Aquila, in 1582, in folio, very scarce. 2. Italian poems, which are esteemed, and have had several editions.

COSTA-RICCA, a province of North America in New Spain, and in the audience of Guatemala, bounded on the north-east by the northern ocean, on the south-west by the south sea, on the north-west by Nicaragua, and on the south-east by Veragua. The soil is not very fertile, though there is plenty of cattle. Carthage is the capital town.

COSTARD (George), a clergyman of the church of England, and author of several learned works, was born about the year 1710. He was educated at Wadham College, Oxford; and took the degree of M. A. in 1733. The first ecclesiastical situation in which he was placed was that of curate of Islip in Oxfordshire. In 1747 he published, in 8vo, *Some Observations tending to illustrate the Book of Job*. In 1750 he published *Two Dissertations*: I. On the meaning of the Word *Kesitah*, mentioned in Job, chap. xlii. ver. 11. II. On the Signification of the Word *Hermes*. In 1752 he published, in 8vo, at Oxford, *Dissertationes II. Critico-Sacræ, quarum prima explicatur Essek. xiii. 18. Altera vero, 2 Reg. x. 22.* In 1755 he wrote a letter to Dr Birch, which is preserved in the British Museum, respecting the meaning of the phrase *sphæra barbarica*. Some time after this he undertook to publish a second edition of Dr Hyde's *Historia Religionis veterum Persarum, eorumque Magorum*; and which was accordingly printed, under his inspection and with his corrections, at the Clarendon Press at Oxford, in 4to, in 1760. Mr Costard's extensive learning having now recommended him to the notice of Lord Chancellor Northington, he obtained, by the favour of that nobleman, in June 1764, the vicarage of Twickenham in Middlesex; in which situation he continued till his death. In 1767 he published, in one volume quarto, *The history of Astronomy, with its application to Geography, History, and Chronology*;

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Costard.

Costiveness occasionally exemplified by the Globes. This work was chiefly intended for the use of students, and contains a full and distinct view of the several improvements made in geography and astronomy. Mr Costard has shown, "by a gradual deduction, at what time, and by whom, the principal discoveries have been made in geography and astronomy; how each discovery has paved the way to what followed; and by what easy steps, through the revolution of so many ages, these very useful sciences have advanced towards their present state of perfection." In 1778 he published, in 8vo. A Letter to Nathaniel Brassey Halhead, Esq; containing some Remarks on his Preface to the Code of Gentoo Laws. This appears to have been the last of his publications. It contains some criticisms which were intended to invalidate the opinion which Mr Halhead had conceived concerning the great antiquity of the Gentoo laws; and some arguments against a notion which had been adopted by several writers, drawn from the observation of natural phenomena, that the world is far more ancient than it is represented to be by the Hebrew chronology. Mr Costard died on the 10th of January 1782. He was a man of uncommon learning, and eminently skilled in Grecian and oriental literature. His private character was amiable, and he was much respected in the neighbourhood in which he lived for his humanity and benevolence.—Besides the works already mentioned, he wrote some others; and was also the author of learned papers, inserted in the Philosophical Transactions, on astronomical and chronological subjects.

COSTIVENESS, a preternatural detention of the feces, with an unusual dryness and hardness thereof, and thence a suppression of their evacuation. See (the *Index* subjoined to) **MEDICINE**.

COSTMARY, the English name of a species of tanfy. See **TANACETUM**.

COSTS, in law, imply the expences of a suit recovered by the plaintiff, together with damages. Costs were not allowed by the common law, the amercement of the vanquished party being his only punishment; but they are given by statute*. Costs are allowed in chancery for failing to make answer to a bill exhibited, or making an insufficient answer; and if a first answer be certified by a master to be insufficient, the defendant is, to pay. 40 s.; 3l. for a second insufficient answer; 4l. for a third, &c. But if the answer be reported good, the plaintiff shall pay the defendant 40s. costs.

* *Blackst. Comment.*
iii. 399,
400.

COSTUME, a rule or precept in painting, by which the artist is enjoined to make every person and thing sustain its proper character, and not only observe the story, but the circumstances, the scene of action, the country or place, and take care that the habits, arms, manners, proportions, and the like, exactly correspond.

COSTUS, in botany: A genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the eighth order, *Scitamineæ*. The corolla is interior, inflated, and ringent, with the under lip trifid. There is but one species, viz. the arabicus, a native of the Indies. The root was formerly in some esteem as an attenuant, and serviceable in venereal complaints; but it is now rarely prescribed or met with in the shops.

COTA (Rodríguez), a Spanish poet in the 16th century, was the author of the *Tragi-comedia de Calisto y Meliba*, which has been translated into Latin by Gaspar Barthius, and into French by James de Lavaradin. The Spaniards set a great value on this performance.

CO-TANGENT, the tangent of an arch which is the complement of another to 90°. See **GEOMETRY**.

COTBUS, a town of Germany in Lower Lusace. It is a strong important place, and has been subject to the king of Prussia ever since the year 1645. It is seated on the river Spree, 60 miles south-by-east of Berlin, and 55 south-east of Wirttemberg. Here are a great number of French Protestants, who have introduced manufactures; and this place is noted for excellent beer, pitch, and the cultivation of flax. E. Long. 15. 29. N. Lat. 51. 40.

COTE, a term used in coursing, to express the advantage one greyhound has over another when he runs by the side of it, and, patting before it, gives the hare a turn. See **COURSING**.

COTE-GARE, a kind of refuse wool, so clung or clotted together that it cannot be pulled asunder. By 13 Rich. II. stat. 1. c. 9. it is provided, that neither denizen or foreigner make any other refuse of wools, but cote-gare and villein. So the printed statute has it; but in the parliament-roll of that year it is *cod-land*, and *villein*. *Cot*, or *cote*, signifies as much as cottage in many places, and was so used by the Saxons according to Verstegan.

COTELERIUS (John Baptist), fellow of the Sorbonne, and king's Greek professor, was born at Nismes in Languedoc in 1627. He made a collection of the fathers who lived in the apostolic age, which he published at Paris in two volumes folio in 1672; all reviewed and corrected from several MSS. with a Latin translation and notes. He also published *Monumenta Ecclesiae Graecæ*, in 3 vols; being a collection of Greek tracts out of the king's and M. Culbert's libraries, and which had never been published before; to these he added a Latin translation and notes. He intended a farther prosecution of this work; but his intense studies broke his constitution, and deprived him of life in 1686. Besides his great skill in languages and ecclesiastical antiquities, Cotelarius was remarkable for his probity and candour.

COTERELLUS. *Cotarius*, and *coterellus*, according to Spelman and Du Fresne, are servile tenants; but in Doomday and other ancient MSS. there appears a distinction, as well in their tenure and quality as in their name: for the cotarius hath a free soccage tenure, and paid a stated firm or rent in provisions or money, with some occasional customary services; whereas the coterellus seems to have held in mere villenage, and his person, issue, and goods, were disposable at the pleasure of the lord.

COTERIE, a term adopted from the French trading associations or partnerships, where each person advances his quota of stock and receives his proportion of gain; and which retains its original meaning when applied to little assemblies or companies associated for mirth and good humour, where each one furnishes his quota of pleasantry. Here they coin new words not understood elsewhere, but which it becomes fashionable for others to use; and they are thought ridiculous who

Cota
Coterie.

are

Cotes
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Cott.

are ignorant of them. It has been used of late to signify a club of ladies.

COTES (Roger), an excellent mathematician of the 18th century. He early discovered an inclination to the mathematics; and at 17 years of age was admitted a pensioner of Trinity College, Cambridge. In 1706 he was appointed professor of astronomy in the professorship founded by Dr Plume archdeacon of Rochester, being chosen the first in that chair for his great merit and learning. In the year 1713, at the request of Dr Richard Bentley, he published at Cambridge, in 4to, a second edition of Sir Isaac Newton's *Principia*, with all the improvements which the author had annexed thereto; to which he prefixed an excellent Preface. He prepared several useful books for the public; and wrote A Description of the great Meteor which appeared on the 6th of March 1716, published in the Philosophical Transactions. He lived but a little while to carry on the discourses for which he was eminently qualified; dying in the prime of his age in 1716, to the great regret of all the lovers of the sciences.

COTESWOLD, several sheep cotes, and sheep feeding on hills. It comes from the Saxon *cote*, i. e. *casa*, "a cottage," and *wold*, "a place where there is no wood."

COTHURNUS, **BUSKIN**, a very high shoe or patten raised on soles of cork, wore by the ancient actors in tragedy to make them appear taller and more like the heroes they represented; most of whom were supposed to be giants. It covered the greatest part of the leg, and was tied beneath the knee. *Æschylus* is said to have invented the cothurns. See **BUSKIN**.

COTICE, or **CORISE**, in heraldry, is the fourth part of the bend; which with us is seldom or ever borne but in couples, with a bend between them: whence probably the name; from the French *cote*, "side;" they being borne, as it were, a side of the bend.—A bend thus bordered is said to be *cotised*, *cotice*. He bears sable on a bend cotised argent three cinquefoils.

COTILLON, the name of a well-known brisk dance, in which eight persons are employed. The term is French, and signifies an under petticoat.

COTRONE, a town in the Hither Calabria, standing on the site of the ancient Croton, though not occupying the same extent of ground: (See **CROTON**). It is fortified with single walls, and a castle erected by Charles V. Its private buildings are poor and fordid, the streets dismal and narrow. Cheese and corn are the principal commodities. For the stowage of corn, there are ranges of granaries in the suburbs; and the annual export is about 200,000 tomoti. The cheese is tolerably good; but has a great deal of that hot acrid taste so common to all cheese made with goats milk. The wine is not unpleasant, and appears susceptible of improvement by better management in the making and keeping.

COTT, a particular sort of bed frame, suspended from the beams of a ship for the officers to sleep in between the decks. This contrivance is much more convenient at sea than either the hammocks or fixed cabins; being a large piece of canvas sewed into the form of a chest, about six feet long, and one foot deep, and from two to three feet wide. It is extended by a

square wooden frame with a canvas bottom, equal to its length and breadth, to retain it in an horizontal position.

COTTAGE, **COTTAGIUM**, is properly a little house for habitation without lands belonging to it; stat. 4. Edw. I. But by a later statute, 31 Eliz. c. 7. no man may build a cottage unless he lay four acres of land thereto; unless it be in market-towns or cities, or within a mile of the sea, or for the habitation of labourers in mines, sailors, foresters, shepherds, &c. and cottages erected by order of justices of peace for poor impotent people are excepted out of the statute. The four acres of land to make it a cottage within the law are to be freehold, and land of inheritance; and four acres holden by copy, or for life or lives, or for any number of years, will not be sufficient to make a lawful cottage.

COTTON, in commerce, a soft downy substance found on the gossypium, or cotton-tree. See **Gossypium**.

Cotton is separated from the seeds of the plant by a mill, and then spun and prepared for all sorts of fine work, as stockings, waistcoats, quilts, tapestry, curtains, &c. With it they likewise make muslin; and sometimes it is mixed with wool, sometimes with silk, and even with gold itself.

The finest sort comes from Bengal and the coast of Coromandel.

Cotton makes a very considerable article in commerce, and is distinguished into cotton-wool and cotton-thread. The first is brought mostly from Cyprus, St John d'Arce, and Smyrna: the most esteemed is white, long, and soft. Those who buy it in bales should see that it has not been wet: moisture being very prejudicial to it.

Of cotton-thread, that of Damas, called *cotton d'ounce*, and that of Jerusalem, called *bazas*, are the most esteemed; as also that of the West India islands. It is to be chosen white, fine, very dry, and evenly spun. The other cotton threads are the half bazas, the rames, the beledin, and gondezel; the payas and montasiri, the geneguins, the baquins, the josselassars, of which there are two sorts. Those of India, known by the name of Tutucorin, Java, Bengal, and Surat, are of four or five sorts, distinguished by the letters A, B, C, &c. They are sold in bags, with a deduction of one pound and a half on each of those of Tutucorin, which are the dearest, and two pounds on each bag of the other sorts. For those of Fielesas, Smyrna, Aleppo, and Jerusalem, the deduction at Amsterdam is eight in the hundred for the tare, and two in the hundred for weight, and on the value one per cent. for prompt payment.

Cotton of Siam, is a kind of silky cotton in the Antilles, so called because the grain was brought from Siam. It is of an extraordinary fineness, even surpassing silk in softness. They make hose of it there preferable to silk ones for their lustre and beauty. They sell from 10 to 12 and 15 crowns a pair, but there are very few made unless for curiosity.

The manner of packing Cotton as practised in the Antilles. The bags are made of coarse cloth, of which they take three ells and a half each; the breadth is one ell three inches. When the bag has been well soaked in water, they hang it up, extending the mouth of

Cottage
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Cotton.

Cotton.

of it to cross pieces of timber nailed to posts fixed in the ground seven or eight feet high. He who packs it goes into the bag, which is six feet nine inches deep, or thereabouts, and presses down the cotton, which another hands him, with hands and feet; observing to tread it equally every where, and putting in but little at a time. The best time of packing is in rainy, moist weather; provided the cotton be under cover. The bag should contain from 300 to 320 pounds. The tare abated in the Antilles is three in the hundred. Cotton being a production applicable to a great variety of manufactures, it cannot be too much cultivated in our own plantations that will admit of it.

COTTON-Spinning, the art or process of reducing cotton-wool into yarn or thread.

The most simple method for this purpose, and the only one in use for a long time in this country, was by the hand upon the well-known domestic machine called a *one-thread wheel*. But as the demand for cotton-goods began to increase, other inventions were thought of for expediting this part of the manufacture. About 50 years ago, one Paul and others of London contrived an engine for a more easy and expeditious method of spinning cotton, and for which they obtained a patent; but the undertaking did not prove successful. Some years thereafter, various machines were constructed by different persons for facilitating the spinning of cotton; but without producing any very material or lasting advantage. At length, about the year 1767, Mr James Hargrave, a weaver in the neighbourhood of Blackburn in Lancashire, constructed a machine by which a great number of threads (from 20 to 80) might be spun at once, and for which he obtained his Majesty's letters-patent. This machine is called a *Jenny*, and is the best contrivance for spinning *woof* or *shute* that has hitherto appeared. It is now commonly constructed for 84 threads; and with it one person can spin 100 English hanks in the day, each hank containing 840 yards.

Carding of cotton, as a preparation for spinning, used formerly to be performed by the hand, with a single pair of cards, upon the knee: but this being a tedious method, ill suited to the rapid operations of the new spinning machines, other methods were contrived for affording a quicker and more adequate supply. The first improvement for this purpose was likewise made by Mr Hargrave; and consisted in applying two or three cards to the same board, and fixing them to a stool or stock; whence they obtained the name of *stock-cards*. With these, one woman could perform two or three times as much work as she could do before in the common way. A still more expeditious method of carding, however, by what are commonly called *cylinder-cards*, was soon afterwards invented, and is that which is now most commonly practised: but as several persons lay claim to this invention, it is not easy to determine to whom in particular the merit of it is due.

The next and most capital improvements which this branch of manufacture received were from Mr Arkwright, a native of Lancashire, now Sir Richard Arkwright of Cromford in Derbyshire. He first brought forward his new method of spinning cotton in 1768, for which he obtained a patent in 1769; he afterwards, in 1775, obtained a patent for engines which

Nc. 93.

he had constructed to prepare the materials for spinning: though one of these patents, being challenged at law, was set aside some years before it expired. The result of Mr Arkwright's different inventions and improvements is a combination of machinery, by which cotton is *carded*, *roved*, and *spun*, with the utmost exactness and equality; and such a degree of perfection attained in spinning *warp*, as is not to be equalled in any other part of the world. To these improvements this country is entirely indebted for the great extent of its cotton manufactures; large buildings having been erected for that branch both in England and Scotland, many of which contain several thousands of spindles, each driven by one or more large water wheels; and some of such extent as to spin at the rate of one thousand yards of twist or warp yarn in the minute.

Other machines have been invented at different times, and a variety of improvements made by different mechanics and manufacturers; one of which in particular we must not omit to mention. It is called a *Mule*, being a kind of mixture of machinery between the *warp-machine* of Mr Arkwright and the *woof-machine* or hand jenny of Mr Hargrave; and was also invented in Lancashire. This machine bids fair to be of great use in spinning cotton yarn for muslins to a degree of fineness never before known in this country, being nearly equal in quality to those usually brought from India.

COTTON-Mills, are large buildings with peculiar machinery for carding, roving, and spinning cotton: (see the preceding article.)—These were entirely unknown in this country before the different inventions and improvements of Messrs Arkwright and Hargrave; since which time great numbers have been erected in England, and several in Scotland.

The first erections of the kind were by Messrs Arkwright and Hargrave, both in the town of Nottingham, and both nearly at the same time. The engines were then driven by horses: but since that time they have been chiefly erected upon water falls in different parts of the country; particularly the warp machines, which are better adapted for being driven by water than any other. The most extensive of these is in the village and neighbourhood of Cromford in Derbyshire, and under the immediate inspection of Sir Richard Arkwright. The first that was erected in Scotland was for Mr Peter Brotherston, under the inspection and direction of Mr John Hackett from Nottingham; and is in the neighbourhood of Pennycuik near Edinburgh. Since which time several have been erected in the neighbourhood of Glasgow, Paisley, Lanark, Perth, &c.

General state of the COTTON Manufactory. The facilities which the manufacturers of Great Britain had suddenly acquired, and the immense capitals which they have so recently laid out in expensive machinery and other heavy establishments for carrying on the cotton trade, are unparalleled in the annals of the world. Above one hundred and forty cotton mills are now built in Great Britain, of which nearly two-thirds have been erected within these seven years. Besides these, there are above 20,500 hand-mills or jennies for spinning the shute for the twisted yarn spun by the water-mills.

Above a million of money was, within this time, sunk

Cotton.

Cotton. funk in mills, hand engines, and other machines, including the grounds and necessary buildings.

Expence of water-mills,	L. 715,000	0	0
Ditto of hand-jennies, houses, buildings, and auxiliary machinery, supposed at least,	285,000	0	0

Total,	L. 1,000,000	0	0
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A power had also been created of working nearly two million of spindles; and men, women, and children were trained to this business, capable of carrying the cotton manufacture almost to any extent. In 1787, the power of spindles capable of being worked was estimated as follows:

In the water-mills,	-	-	286,000
In the Jennies,	-	-	1,665,100

Total spindles,	1,951,100
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In the branches applicable to muslin and callico, it was calculated that employment was given to 100,000 men and women, and at least 60,000 children; many of the latter having been taken from different parishes and hospitals in Great Britain.

The quantity of the raw material of cotton wool consumed in this manufacture, which did not amount to 6,000,000 lb. in 1781, and was only about 11,000,000 lb. six years ago, had amounted in the year 1787 to the enormous height of 22,000,000 lb. and upwards; and the astonishing rapidity of this increase is in some measure to be attributed to the extension of these branches to the goods of India, particularly the calicoes and muslins.

British calicoes were first made in Lancashire about the year 1772, but the progress was slow till within these last 12 years. The quantity manufactured has since extended from about 50,000 to 1,000,000 of pieces made in the course of a single year.

British muslins were not successfully introduced until the year 1781, and were carried to no great extent until 1785, after which period the progress during two years became rapid beyond all example. The acquisition of cotton wool of a superior quality from Demerara and the Brazils, and the improvements made in the spinning fine yarns upon the mule jennies, had given a spring to this branch of the cotton manufactory, which extended it beyond what it was possible to have conceived. Above half a million pieces of muslin of different kinds, including shawls and handkerchiefs, were computed to be annually made in Great Britain; while the quantity not only increased daily with the new accession of powers that were bursting forth upon the country, but the quality was exceedingly improved; and since a yearly supply of about 300 bales of East Indian cotton has been obtained by the way of Ostend, yarns have been spun, and muslins have been wove, equal to any from India. Nothing, therefore, but a fine raw material appeared wanting to enable the British manufacturer to carry this branch to the greatest extent; and, of all others, it is that species of cotton goods which deserves most to be encouraged, because of the immense return it makes for labour more than any other branch of the cotton manufactory. East India cotton wool has been spun into one pound of yarn worth five guineas; and when wove into muslin, and afterwards ornamented by children in the tambour, has

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extended to the value of L. 15; yielding a return of 5,900 per cent. on the raw material.

But the state of the raw materials, and the progressive and astonishing increase of this manufacture, will be best explained by what follows:

	Cotton Wool used in the Manufacture.	Supposed Value when manufactured.
1781,	lb. 5,101,920	L. 2,000,000
1782,	11,206,810	3,900,000
1783,	9,546,179	3,200,000
1784,	11,280,238	3,950,000
1785,	17,992,888	6,000,000
1786,	19,151,867	6,500,000
1787,	22,600,000	7,500,000

Such was the progress of the British cotton manufactory till 1787; when with establishments and mechanical powers capable of bringing forward immense quantities of goods into the consumption, this manufacture was checked by a great and sudden reduction of the price of East India goods of the same species, which were sold above 20 per cent. on an average under the lowest prices at which the British manufacturer can afford to sell without loss.

This conduct in the East India Company quickly operated to the great prejudice of the British manufactures; and there is no saying how far these might be reduced, should that company be allowed to press goods upon the market at prices which have no relation to the original cost, and under circumstances where the just laws of competition cannot operate, and where every idea of protecting duties is annihilated in the effect of the general system.

It is believed, however, that the home-manufacture of this article, in all its different branches, has of late revived, and is likely to be carried on with greater advantage to the manufacturer than ever it was before.

Lavender COTTON. See SANTOLINA.

Philosophic COTTON, a name given to the flowers of zinc, on account of their white colour and resemblance to cotton.

Flax made to resemble COTTON. See FLAX.

Silk COTTON. See BOMBAX.

COTTON-Weed. See GNAPHALIUM.

COTTON (Sir Robert), a most eminent English antiquarian, descended from an ancient family, was born in 1570. In his 18th year he began to collect ancient records, charters, and other MSS. Camden, Selden, and Speed, acknowledged their obligations to him in their respective works. He was highly distinguished by queen Elizabeth, and by James I. who created him a baronet. He wrote many things himself; but our principal obligations to him are for his valuable library, consisting of curious manuscripts, &c. which he was forty years in collecting. At his death in 1631, he left the property of it to his family, though designed for public use. A large accession was made to this library by private benefactions before the death of the founder, and afterwards by the purchases of his heirs, and donations of others, who added to it a great number of books, chiefly relating to the history and antiquities of our own nation. An act of parliament was obtained, at the request of Sir John Cotton, in 1700, for preserving it after his decease, under the above denomination, for public use. It is now fixed in the British Museum. For statutes relating

Cotton

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Cottus.

to it, see 12 and 13 W. III. c. 5. and 5 Anne. cap. 30.

COTTON (Charles), a burlesque poet, was descended of a good family, and lived in the reigns of Charles II. and James II. His most celebrated piece is *Scarronides* or *Travestie* of the first and fourth books of the *Æneid*. But though, from the title, one would be apt to imagine it an imitation of Scarron's famous *Travestie* of the same author, yet upon examination, it would be found greatly to excel not only that, but every other attempt of the same kind that hath been hitherto made in any language. He has also translated several of Lucian's dialogues, in the same manner, under the title of *the Scoffer Scoff'd*;—and written another poem of a more serious kind, entitled *the Wonders of the Peak*. The exact period of either Mr. Cotton's birth or his death, is no-where recorded; but it is probable the latter happened about the time of the revolution. Neither is it better known what his circumstances were with respect to fortune; they appear, however, to have been easy, if one may judge from the turn of his writings, which is such as seems scarcely possible for any one to indulge whose mind was not perfectly at ease. Yet there is one anecdote told of him, which seems to shew that his vein of humour could not restrain itself on any consideration, viz. that in consequence of a single couplet in his *Virgil Travestie*, wherein he has made mention of a peculiar kind of ruff worn by a grandmother of his who lived in the Peak, he lost an estate of L. 400 *per annum*; the old lady, whose humour and testy disposition he could by no means have been a stranger to, being never able to forgive the liberty he had taken with her; and having her fortune wholly at her disposal, although she had before made him her sole heir, altered her will, and gave it away to an absolute stranger.

COTTUS, or BULL-HEAD, in ichthyology, a genus belonging to the order of thoracici. The head is broader than the body, and the gill-membrane has six rays. There are six species; the most remarkable are,

1. The gobio, or river bull-head, is very common in all our clear brooks: it lies almost always at the bottom, either on the gravel or under a stone: it deposits its spawn in a hole which it forms among the gravel, and quits it with great reluctance. It feeds on water insects. This fish seldom exceeds the length of three inches and an half: the head is large, broad, flat, and thin at its circumference, being well adapted for insinuating itself under stones: on the middle part of the covers of the gills is a small crooked spine turning inwards. The eyes are very small: the irrides yellow: the body grows slender towards the tail, and is very smooth. The colour of this fish is as disagreeable as its form, being dusky, mixed with a dirty yellow; the belly is whitish. The taste, however, is excellent.

2. The cataphractus, armed bull-head, or *pogge*, is very common on most of the British coasts. It seldom exceeds five inches and an half in length; and even seldom arrives at that size. The head is large, bony, and very rugged: the end of the nose is armed with four short upright spines: on the throat are a number of short white beards; the body is octagonal, and co-

vered with a number of strong bony crusts, divided into several compartments, the ends of which project into a sharp point, and form several echinated lines along the back and sides from the head to the tail.

3. The scorpius, or father-lasher, is not uncommon on the rocky coasts of this island; it lurks under stones, and will take a bait. It seldom exceeds 8 or 9 inches in length. The head is large, and has a most formidable appearance, being armed with vast spines, which it can oppose to any enemy that attacks it, by swelling out its cheeks and gill covers to a large size. The nose and space contiguous to the eyes are furnished with short sharp spines; the covers of the gills are terminated by exceeding long ones, which are both strong and very sharp pointed. The mouth is large; the jaws covered with very small teeth; the roof of the mouth is furnished with a triangular spot of very minute teeth. This species is very frequent in the Newfoundland seas, where it is called *scolping*: it is also as common on the coast of Greenland, in deep water near the shore. It is a principal food of the natives, and the soup made of it is said to be agreeable as well as wholesome.

COTULA, MAY-WEED: A genus of the polygama superflua order belonging to the syngenesia class of plants. The receptacle is almost naked; the pappus marginated; the florets of the disc quadrifid; of the radius frequently none. There are six species, all of them herbaceous annuals, rising six or eight inches high, and adorned with yellow flowers. There are none of them natives of this country, and most of them require artificial heat.

COTULA, or *Cotyla*, a liquid measure in use among the ancients.

Fannius says, the cotyla was the same thing with the hemina, which was half a sextary.

*At cotylas, quas si placeat, dixisse licebit.
Heminas recepit geminas extarias unus.*

Chorier observes, that the cotyla was used as a dry measure as well as a liquid one; from the authority of Thucydides, who in one place mentions two cotylæ of wine, and in another two cotylæ of bread.

COTURNIX, in ornithology. See TETRAO.

COTYLEDON, NAVEL-WORT; a genus of the pentagynia order, belonging to the decandria class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calix is quinquefid; the corolla monopetalous: there are five nectariferous scales at the base of the germen, and five capsules. There are eight species, most of them hardy succulent perennials; though some require to be kept in a stove, as being natives of warm climates. They rise from half a foot to a yard and an half high, and are adorned with yellow flowers growing in umbels. They are easily propagated either by seed or cuttings of their branches.

COTYLEDONES, in anatomy, are certain glandular bodies, adhering to the chorion of some animals.

COTYLEDONES, in botany, the perishable porous side-lobes of the seed, which involve, and for some time furnish nourishment to, the embryo plant. See BOTANY, p. 435.

COTYTTO, the goddess of all debauchery. Her festivals called *Cotyttia* were celebrated by the Athenians, Corinthians, Thracians, &c. during the night. Her priests were called *baptæ*, and nothing but debauchery

Cotula

||

Cotyttio.

Couch
||
Covenant.

chery and wantonness prevailed at the celebration. A festival of the same name was observed in Sicily, where the votaries of the goddess carried about boughs hung with cakes and fruit, which it was lawful for any person to pluck off. It was a capital punishment to reveal whatever was seen or done at these sacred festivals. It cost Eupolis his life for an unreasonable reflection upon them. The goddess Cotytto is supposed to be the same as Proserpine.

COUCH, in painting, denotes a lay, or impression of colour, whether in oil or water, wherewith the painter covers his canvas, wall, wainscot, or other matter to be painted.

The word is also used for a lay or impression on any thing, to make it firm and consistent, or to screen it from the weather.

Paintings are covered with a couch of varnish; a canvas to be painted must first have two couches of size, before the colours be laid; two or three couches of white lead are laid on wood, before the couch of gold be applied: the leather-gilders lay a couch of water and white of eggs on the leather, before they apply the gold or silver leaf.

The gold wire-drawers also use the word *couch* for the gold or silver leaf wherewith they cover the mass to be gilded or silvered, before they draw it through the iron that is to give it its proper thickness.

The gilders use couch for the quantity of gold or silver leaves applied on the metals in gilding or silvering. Each couch of gold is but one leaf, or two at most, and each of silver three to gild: if the gilding be hatched, there are required from eight to twelve couches; and only three or four if it be without hatching. To silver there are required from four to ten couches, according to the beauty of the work.

COUCH-Grass, in botany. See TRITICUM.

COUCHANT, in heraldry, is understood of a lion, or other beast, when lying down, but with his head raised; which distinguishes the posture of couchant from dormant, wherein he is supposed quite stretched out and asleep.

COUCHE, in heraldry, denotes any thing lying along: thus, chevron-couche, is a chevron lying sideways, with the two ends on each side of the shield, which should properly rest on the base.

COUCHER, or COURCHER, in our statutes, is used for a factor, or one that continues in some place or country for traffic; as formerly in Gascoign, for the buying of wines. Anno 37. Edw. III. c. 16.

COUCHER is also used for the general book in which any religious-house or corporation register their particular acts. Anno 3 and 4. Edw. VI. c. 10.

COUCHING of a CATARACT, in surgery. See SURGERY-Index.

COVE, a small creek or bay, where boats and small vessels may ride at anchor, sheltered from the wind and sea.

COVENANT, in law, is the consent and agreement of two or more persons to do, or not to do, some act, or thing, contracted between them. Also it is the declaration the parties make, that they will stand to such agreement, relating to lands or other things; and is created by deed in writing, sealed and executed by the parties, or otherwise it may be implied in the contract as incident thereto. And if the persons do

not perform their covenants, a writ or action of covenant is the remedy to recover damages for the breach of them.

COVENANT, in ecclesiastical history, denotes a contract or convention agreed to by the Scotch in the year 1638, for maintaining their religion free from innovation. In 1581, the general assembly of Scotland drew up a confession of faith, or national covenant, condemning episcopal government, under the name of *hierarchy*, which was signed by James I. and which he enjoined on all his subjects. It was again subscribed in 1590 and 1596. The subscription was renewed in 1638, and the subscribers engaged by oath to maintain religion in the same state as it was in 1580, and to reject all innovations introduced since that time. This oath annexed to the confession of faith received the name of the *covenant*: as those who subscribed it were called *covenanters*.

COVENANT, in theology, is much used in connection with other terms; as, 1. *The Covenant of Grace* is that which is made between God and those who believe the gospel, whereby they declare their subjection to him, and he declares his acceptance of them and favour to them. The gospel is sometimes denominated a *covenant of grace*, in opposition to the Mosaic law. 2. *Covenant of Redemption* denotes, a mutual stipulation, tacit or express, between Christ and the Father, relating to the redemption of sinners by him, previous to any act on Christ's part under the character of Mediator. 3. *Covenant of Works* signifies, in the language of some divines, any covenant whereby God requires perfect obedience from his creatures, in such a manner as to make no express provision for the pardon of offences to be committed against the precepts of it, on the repentance of such supposed offenders, but pronounces a sentence of death upon them: such, they say, was the covenant made with Adam in a state of innocence, and that made with Israel at Mount Sinai.

Solemn League and Covenant, was established in the year 1643, and formed a bond of union between Scotland and England. It was sworn and subscribed by many in both nations; who hereby solemnly abjured popery and prelacy, and combined together for their mutual defence. It was approved by the parliament and assembly at Westminster, and ratified by the general assembly in Scotland in 1645. King Charles I. disapproved of it when he surrendered himself to the Scots army in 1646: but in 1650 Charles II. declared his approbation both of this and the national covenant by a solemn oath; and in August of the same year, made a farther declaration at Dunfermline to the same purpose, which was also renewed on occasion of his coronation at Scone in 1651. The covenant was ratified by parliament in this year; and the subscription of it required by every member, without which the constitution of the parliament was declared null and void. It produced a series of distractions in the subsequent history of that country, and was voted illegal by parliament, and provision made against it. Stat. 14. Car. II. c. 4.

Ark of the Covenant, in Jewish antiquity. See ARK.

COVENTRY, a town of Warwickshire, in England, situated in W. Long. 1. 26. N. Lat. 52. 25. It is an ancient place, and is supposed to derive its name

Covenan
Coventry.

Coventry. from a convent formerly situated here. Leofric, earl of Mercia, who rebuilt the religious house after it had been destroyed by the Danes, and was lord of the place about the year 1040, is said, upon some provocation, to have loaded them with heavy taxes. Being importuned by his lady, Godiva, to remit them, he consented, upon condition that she should ride naked through the town, which he little imagined she would ever comply with. But he found himself mistaken: for she accepted the offer, and rode through the town with her long hair scattered all over her body; having first enjoined the citizens not to venture, on pain of death, to look out as she passed. It is said, however, that a certain taylor could not help peeping: and to this day there is an effigy of him at the window whence he looked. To commemorate this extraordinary transaction, and out of respect to the memory of their patroness, the citizens make a procession every year, with the figure of a naked woman on horseback. After Leofric's death, the earls of Chester became lords of the city, and granted it many privileges. At length it was annexed to the earldom of Cornwall; and growing considerable, had divers immunities and privileges conferred upon it by several kings; particularly that of a mayor and two bailiffs by Edward III.; and Henry VI. made it, in conjunction with some other towns and villages, a distant county, independent of the county of Warwick. But afterwards Edward IV., for their disloyalty, deprived them of their liberties, which were not restored till they had paid a fine of 500 merks. By a charter from James I. an alderman is allotted to each ward, with the powers of the justices of the peace within the city and its liberties. The walls were ordered to be demolished at the restoration; and now nothing remains of them but the gates, which are very lofty. Coventry is noted for the two parliaments which were held in it; the one called the parliament of *Dunces*, and the other of *Devils*. The former was so called on account of the exclusion of the lawyers; and the attenders of the Duke of York, the earls of Salisbury, Warwick, and March, procured the other the epithet of *Devils*. The town house of Coventry is much admired for its painted windows, representing several kings and others that have been benefactors to the city. The chief manufactures carried on here are tennies and ribbands.

Coventry sends two members to parliament, and gives title of earl to an ancient family of the same name.—Coventry is a bishop's see. The bishoprick is said to have been founded by Oswy king of Mercia; in the year 666 or 667; and although it had a double name, yet, like Bath and Wells, it is a single diocese. It was so extremely wealthy, that king Offa, by the favour of pope Adrian, constituted it an archiepiscopal see; but this title was laid aside on the death of that king. In 1075, Peter, the 34th bishop, removed the see to Chester. In 1102, Robert de Limsey, his immediate successor, removed it to Coventry; and Hugo Novant, the 41st bishop, removed it back to Litchfield, but with great opposition from the monks of Coventry. The dispute was finally settled in a manner nearly similar to that which is mentioned between Bath and Wells. Here it was agreed that the bishop should be styled from both places, and that Coventry should have the precedence; that they should choose the bi-

shop alternately; and that they should both make one chapter to the bishop, in which the prior of Coventry should be the chief man. Matters continued thus till the Reformation, when the priory of Coventry being dissolved by king Henry VIII. the style of the bishop continued as before. But an act of parliament passed, 33d of king Henry VIII. to make the dean and chapter of Litchfield one sole chapter to the bishop. This see hath given three saints to the church, and to the nation one lord chancellor, three lord treasurers, three presidents of Wales, one chancellor to the university of Cambridge, and one master of the Wardrobe. The old church built by king Oswy being taken down by Roger de Clinton, the 37th bishop, he built the beautiful fabric that now stands in 1148, and dedicated it to the Virgin Mary and St. Chad. During the grand rebellion, the church suffered much; but, soon after the Restoration, it was repaired and beautified. This diocese contains the whole counties of Stafford and Derby (except two parishes of the former), the largest part of Warwickshire, and near only one half of Shropshire, in which are 555 parishes, of which 250 are impropriate. It hath four archdeacons, viz. Stafford, Derby, Coventry, and Shrewsbury. It is valued in the king's books at L. 559: 13: 2½. and is computed to be worth annually L. 2800. The clergy's tenth is L. 590: 16: 11½. To this cathedral belong a bishop, a dean, a precentor, a chancellor, a treasurer, four archdeacons, twenty-seven prebendaries, five priest vicars, seven lay clerks, or singing men, eight choristers, and other under officers and servants.

CO-VERSED SINE, in geometry, the remaining part of the diameter of a circle, after the versed sine is taken from it. See GEOMETRY.

COVERT, in law.—*Feme Covert* denotes a woman married, and so covered by, or under the protection of her husband.

COVERT-way, or CORRIDOR, in fortification, a space of ground, level with the field on the edge of the ditch, three or four fathoms broad, ranging quite round the half moons and other works toward the country. It has a parapet raised on a level, together with its banquets and glacis. See FORTIFICATION.

COVERTURE, in law, is applied to the state and condition of a married woman, who is under the power of her husband, and therefore called *femme covert*.

COUGH, in medicine. See (Index subjoined to) MEDICINE.

COUGH, in farriery. See FARRIERY. § vi.

COUGH, called the husk, is a disease to which young bullocks are subject. In this disorder the wind-pipe and its branches are loaded with small taper worms. Farmers count the disease incurable; but fumigations with mercurials, as cinnabar, or with foetids, as tobacco, might prove serviceable.

COUHAGE, or STINKING BEANS; a kind of kidney-beans imported from the East Indies, where they are used as a cure for the dropy. The down growing on the outside of the pod is so pointed, like a nettle, to sting the flesh, though not with so painful a sensation. This, by a corruption of the word, is called *cowitch*. The plant is a species of *DOLICHOS*.

COVIN, a deceitful compact or agreement between two or more to deceive or prejudice a third person:

Co-versed
Covin.

As.

Coving
Council

As, if a tenant for life conspire with another, that this other shall recover the land which the tenant holds, in prejudice of him in reversion. Dr Skinner takes the word to be a corruption of the Latin *conventum*, and therefore writes it *covien*. See CONSPIRACY.

COVING, in building, is when houses are built projecting over the ground-plot, and the turned projection arched with timber, lathed and plastered.

COVINUS, among the ancients, a kind of chariot, in which the Gauls and Britons used to fight in battles.

COUL, or COWL. See COWL.

COULTER, in husbandry, an iron-instrument, fixed in the beam of a plough, and serving to cut the edge of each furrow. See AGRICULTURE.

COUNCIL, or COUNSEL, in a general sense, an assembly of divers considerable persons to concert measures relative to the state.

In Britain, the law, in order to assist the king in the discharge of his duties, the maintenance of his dignity, and the exertion of his prerogative, hath assigned him a diversity of councils to advise with.

1. The first of these is the high court of parliament. See PARLIAMENT.

2. The peers of the realm are by their birth hereditary counsellors of the crown; and may be called together by the king, to impart their advice in all matters of importance to the realm, either in time of parliament, or, which hath been their principal use, when there is no parliament in being. Accordingly, Bracton, speaking of the nobility of his time, says, they might properly be called "consules a consulendo; reges enim tales sibi associant ad consulendum." And in the law-books it is laid down, that the peers are created for two reasons: 1. *Ad consulendum*, 2. *Ad defendendum*, *regem*: for which reason the law gives them certain great and high privileges; such as freedom from arrests, &c. even when no parliament is sitting; because the law intends, that they are always assisting the king with their counsel for the common-wealth, or keeping the realm in safety by their prowess and valour.

Instances of conventions of the peers, to advise the king, have been in former times very frequent; though now fallen into disuse, by reason of the more regular meetings of parliament. Sir Edward Coke gives us an extract of a record, 5 Henry IV. concerning an exchange of lands between the king and the earl of Northumberland, wherein the value of each was agreed to be settled by advice of parliament (if any should be called before the feast of St Lucia), or otherwise by advice of the grand council of peers, which the king promises to assemble before the said feast, in case no parliament shall be called. Many other instances of this kind of meeting are to be found under our ancient kings: though the formal method of convoking them had been so long left off, that when king Charles I. in 1640, issued out writs under the great seal, to call a council of all the peers of England, to meet and attend his majesty at York, previous to the meeting of the long parliament, the earl of Clarendon mentions it as a new invention, not before heard of; that is, as he explains himself, so old, that it had not been practised in some hundreds of years. But though there had not for long time before been an instance, nor has there been any since, of assembling them in so solemn a manner,

yet in cases of emergency, our princes have at several times thought proper to call for, and consult as many of the nobility as could easily be brought together: as was particularly the case with king James II. after the landing of the prince of Orange; and with the prince of Orange himself, before he called the convention parliament which afterwards called him to the throne.

Besides this general meeting, it is usually looked upon to be the right of each particular peer of the realm, to demand an audience of the king, and to lay before him with decency and respect such matters as he shall judge of importance to the public weal. And therefore, in the reign of Edward II. it was made an article of impeachment in parliament against the two Hugh Spencers, father and son, for which they were banished the kingdom, "that they by their evil covin would not suffer the great men of the realm, the king's good counsellors, to speak with the king, or to come near him; but only in presence and hearing of said Hugh the father and Hugh the son, or one of them, and at their will, and according to such things as pleased them."

3. A third council belonging to the king, are, according to Sir Edward Coke, his judges of the courts of law, for law-matters. And this appears frequently in the English statutes, particularly 14 Edward III. c. 5. and in other books of law. So that when the king's council is mentioned generally, it must be defined, particularized, and understood, *secundum subjectam materiam*; "according to the subject matter:" and if the subject be of a legal nature, then by the king's council is understood his council for matters of law; namely, his judges. Therefore, when by statute 16 Richard II. c. 5. it was made a high offence to import into England any papal bulls, or other processes from Rome: and it was enacted, that the offenders should be attached by their bodies and brought before the king and his council to answer for such offence; here, by the expression of king's council, were understood the king's judges of his courts of justice, the subject-matter being legal: this being the general way of interpreting the word *council*.

4. But the principal council belonging to the king is his *privy council*, which is generally, by way of eminence, called *the council*. For an account of its constitution and powers, see the article *Privy-Council*.

Aulic COUNCIL. See AULIC.

Common COUNCIL, in the city of London, is a court wherein are made all bye-laws which bind the citizens. It consists, like the parliament, of two houses; an upper, composed of the lord mayor and aldermen; and a lower, of a number of common-council men, chosen by the several wards, as representatives of the body of the citizens.

COUNCIL of War, an assembly of the principal officers of an army or fleet, occasionally called by the general or admiral to concert measures for their conduct with regard to sieges, retreats, engagements, &c.

COUNCIL, in church history, an assembly of prelates and doctors, met for the regulating matters relating to the doctrine or discipline of the church.

National COUNCIL, is an assembly of prelates of a nation under their primate or patriarch.

Oecumenical or General COUNCIL, is an assembly which represents,

Council

Blackst.
Comment.

Council,
Counsel.

Counsel
||
Count.

represents the whole body of the universal church. The Romanists reckon eighteen of them; Bullinger, in his treatise de Conciliis, six; Dr Prideaux, seven; and bishop Beveridge has increased the number to eight, which, he says, are all the general councils which have ever been held since the time of the first Christian emperor. They are as follows: 1. The council of Nice, held in the reign of Constantine the Great, on account of the heresy of Arius. 2. The council of Constantinople called under the reign and by the command of Theodosius the Great, for much the same end that the former council was summoned. 3. The council of Ephesus, convened by Theodosius the younger at the suit of Nestorius. 4. The council of Calcedon, held in the reign of Martianus, which approved of the Eutychian heresy. 5. The second council of Constantinople, assembled by the emperor Justinian, condemned the three chapters taken out of the book of Theodorus of Mopsuestia, having first decided that it was lawful to anathematize the dead. Some authors tell us, that they likewise condemned the several errors of Origen about the Trinity, the plurality of worlds, and pre-existence of souls. 6. The third council of Constantinople, held by the command of Constantius Pogonatus the emperor, in which they received the definitions of the five first general councils, and particularly that against Origen and Theodorus of Mopsuestia. 7. The second Nicene council. 8. The fourth council of Constantinople, assembled when Louis II. was emperor of the West. The regulations which they made are contained in twenty-seven canons, the heads of which are set down by M. du Pin, to whom the reader is referred.

COUNSEL, in a general sense, signifies advice or instruction how to behave in any difficult matter.

COUNSEL, or *Advocates*, in English courts of law, are of two species or degrees; BARRISTERS and SERJEANTS. See these articles; also ADVOCATE.

From both these degrees some are usually selected to be his majesty's counsel, learned in the law; the two principal of whom are called his *attorney-general*, and *solicitor-general*. The first king's counsel, under the degree of serjeant, was Sir Francis Bacon, who was made so *honoris causa*, without either patent or fee: so that the first of the modern order (who are now the sworn serjeants of the crown, with a standing salary) seems to have been Sir Francis North; afterwards lord keeper of the Great Seal to king Charles II. These king's counsel answer, in some degree, to the advocates of the revenue, *advocati fisci*, among the Romans. For they must not be employed in any cause against the crown without special licence; in which restriction they agree with the advocates of the fisc: but, in the imperial law, the prohibition was carried still farther, and perhaps was more for the dignity of the sovereign; for, excepting some peculiar causes, the fiscal advocates were not permitted to be at all concerned in private suits between subject and subject. A custom has of late years prevailed of granting letters patent of precedence to such barristers as the crown thinks proper to honour with that mark of distinction: whereby they are intitled to such rank and preaudience as are assigned in their respective patents; sometimes next after the king's attorney-general, but usually next after his majesty's counsel next being. These, as well as the queen's attorney and solicitor-general, rank promiscu-

Blackst.
Comment.

ously with the king's counsel; and, together with them, sit within the bar of their respective courts: but receive no salaries, and are not sworn; and therefore are at liberty to be retained in causes against the crown. And all other serjeants and barristers indiscriminately, (except in the court of common-pleas, where only serjeants are admitted), may take upon them the protection and defence of any suitors, whether plaintiff or defendant; who are therefore called their *clients*; like the dependents on the ancient Roman orators. These indeed practised *gratis*, for honour merely, or at most for the sake of gaining influence: and so likewise it is established with us, that a counsel can maintain no action for his fees; which are given, not as *locatio vel conductio*, but as *quiddam honorarium*; not as a salary or hire, but as a mere gratuity, which a counsellor cannot demand without doing wrong to his reputation; as is also laid down with regard to advocates in the civil law, whose *honorarium* was directed, by a decree of the senate, not to exceed in any case 10,000 sesterces, or about L. 80 of English money. And in order to encourage due freedom of speech in the lawful defence of their clients, and at the same time to check the unseemly licentiousness of prostitute and illiberal men (a few of whom may sometimes insinuate themselves even into the most honourable professions), it hath been holden that a counsel is not answerable for any matter by him spoken, relative to the cause in hand, and suggested in the client's instructions; altho' it should reflect upon the reputation of another, and even prove absolutely groundless; but if he mentions an untruth of his own invention, or even upon instructions, if it be impertinent to the cause in hand, he is then liable to an action from the party injured. And counsel guilty of deceit and collusion are punishable by the statute Westm. 1. 3 Edw. 1. c. 28. with imprisonment for a year and day, and perpetual silence in the courts: a punishment still sometimes inflicted for gross misdemeanors in practice.

COUNSELLOR, in general, a person who advises another: thus we say, a counsellor at law, a privy counsellor, &c.

COUNSELLOR *at Law*, a person retained by a client to plead his cause in a public court of judicature. See ADVOCATE, BARRISTER, COUNSEL, and SERJEANT.

Privy-COUNSELLOR. See PRIVY-COUNCIL.

COUNT, (COMES), a nobleman who possesses a domain erected into a county. See VISCOUNT.

English and Scottish counts we distinguish by the title of *earls*; foreign ones still retain their proper name. The dignity of a count is a medium between that of a duke and a baron—According to the modern use, most plenipotentiaries and ambassadors assume the title of counts, though they have no county; as the count d'Avaux, &c.

Anciently, all generals, counsellors, judges, and secretaries of cities under Charlemagne, were called *counts*; the distinguishing character of a duke and count being this, that the latter had but one town under him, but the former several.

A count has a right to bear on his arms a coronet, adorned with three precious stones, and surrounded with three large pearls, whereof those in the middle and extremities of the coronet advance above the rest.

Counts

Count.

Counts were originally lords of the court, or of the emperor's retinue, and had their name *comites*, *à comitendo*, or *à commendo*: hence those who were always in the palace, or at the emperor's side, were called *counts palatine*, or *comites à latere*. See PALATINE.

In the times of the commonwealth, *comites* among the Romans was a general name for all those who accompanied the proconsuls and prætors into the provinces, there to serve the commonwealth; as the tribunes, præfects, scribes, &c.

Under the emperors, *comites* were the officers of the palace. The origin of what we now call *counts* seems owing to Augustus, who took several senators to be his *comites*, as Dion observes, *i. e.* to accompany him in his voyages and travels, and to assist him in the hearing of causes; which were thus judged with the same authority as in full senate. Gallienus seems to have abolished this council, by forbidding the senators being found in the armies: and none of his successors re-established it.

These counsellors of the emperor were really counts, *comites*, *i. e.* companions of the prince; and they sometimes took the title thereof, but always with the addition of the emperor's name whom they accompanied: so that it was rather a mark of their office than a title of dignity.—Constantine was the first who converted it into a dignity; and under him it was that the name was first given absolutely. The name once established, was in a little time indifferently conferred, not only on those who followed the court, and accompanied the emperor, but also on most kinds of officers; a long list whereof is given us by Du Cange.

Eusebius tells us, that Constantine divided the counts into three classes: the first bore the title of *illustres*; the second that of *clarissimi*, and afterwards *spectabiles*; the third were called *perfectissimi*. Of the two first classes was the senate composed; those of the third had no place in the senate, but enjoyed several other of the privileges of senators.

There were counts who served on land, others at sea; some in a civil, some in a religious, and some in a legal capacity: as *comes ærarii*, *comes sacrarum largitionum*, *comes sacri consistorii*, *comes curiæ*, *comes capellæ*, *comes archiatrorum*, *comes commerciorum*, *comes vestiarius*, *comes horreorum*, *comes opsoniorum* or *annonæ*, *comes domesticorum*, *comes equorum regionum* or *comes stabuli*, *comes domorum*, *comes excubitorum*, *comes notariorum*, *comes legum* or *professor in jure*, *comes limitum* or *marcarum*, *comes portus Romæ*, *comes patrimonii*, &c.

The Franks, Germans, &c. passing into Gaul and Germany, did not abolish the form of the Roman government: and as the governors of cities and provinces were called *counts*, *comites*, and *dukes*, *duces*, they continued to be called so. They commanded in time of war; and in time of peace they administered justice. Thus, in the time of Charlemagne, counts were the ordinary judges and governors of the cities.

These counts of cities were beneath the dukes and counts who presided over provinces; the first being constituted in the particular cities under the jurisdiction of the latter. The counts of provinces were in nothing inferior to dukes, who themselves were only governors of provinces. Under the last of the second race of French kings, they got their dignity rendered hereditary, and even usurped the sovereignty when

Hugh Capet came to the crown: his authority was not sufficient to oppose their encroachments: and hence it is they date the privilege of wearing coronets in their arms; they assumed it then, as enjoying the rights of sovereigns in their particular districts or counties. But, by degrees, most of the counties became re-united to the crown.

The quality of count is now become very different from what it was anciently; being now no more than a title, which a king grants upon erecting a territory into a county, with a reserve of jurisdiction and sovereignty to himself. At first there was no clause in the patent of erection, intimating the reversion of the county to the crown in default of heirs male; but Charles IX. to prevent their being too numerous, ordained that duchies and counties, in default of heirs male should return to the crown.

The point of precedence between counts and marquises has formerly been much controverted: the reason was, that there are counts who are peers of France, but no marquises: but the point is now given up, and marquises take place; though anciently, when counts were governors of provinces, they were on a level even with dukes.

William the Conqueror, as is observed by Camden, gave the dignity of counts in fee to his nobles; annexing it to this or that county or province, and allotting for their maintenance a certain proportion of money, arising from the prince's profits in the pleadings and forfeitures of the provinces. To this purpose he quotes an ancient record, thus: *Hen. II. Rex Angliæ his verbis comitem creavit; scilicet non fecisse Hugonem Bigot comitem de Norf, &c. de tertio denarii de Norwiche & Norfolk, sicut aliquis comes Angliæ, &c.*

The Germans call a count, *graaf*, or *graff*; which, according to a modern critic, properly signifies *judge*; and is derived from *gravis* or *graffo*, of *gravis*. I write. They have several kinds of those counts or grafs; as landgraves, marchgraves, burg-graves, and palgraves, or counts palatine. These last are of two kinds; the former are of the number of princes, and have the investiture of a palatinate: the others have only the title of *count palatine* without the investiture of any palatinate. Some assert, that by publicly professing the imperial laws for twenty years, the person acquires the dignity of a count palatine; and there are instances of professors of law who have assumed the title accordingly: but there are others who question this right.

COUNT, in law, denotes the original declaration in a real action; as the declaration is in a personal one: the libellus of the civilians answers to both. Yet, count and declaration are sometimes confounded, and used for each other; as, count in debt, count in appeal, &c.

COUNT-Wheel, in the striking part of a clock, a wheel which moves round once in 12 or 24 hours. It is sometimes called the *locking-wheel*. See CLOCK-Making.

COUNTER, a term which enters into the composition of diverse words of our language, and generally implies opposition; but when applied to deeds, means an exact copy kept of the contrary party, sometimes signed by both parties.

COUNTER-Changed, in heraldry, the intermixture, or opposition of any metal with a colour.

Count.

Counter.

COUNT.

Counter
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Counter-
poise.

COUNTER-*Flory*, in heraldry, is said of a tressure whose flower-de-luce are opposite to others. See HERALDRY.

COUNTER-*Drawing*, in painting, is the copying a design, or painting, by means of a fine linen-cloth, an oiled paper, or other transparent matter, where the strokes appearing through are followed with a pencil, with or without colour. Sometimes it is done on glass, and with frames or nets divided into squares with silk or with thread, and also by means of instruments invented for the purpose, as the parallelogram.

COUNTER-*Ermine*, in heraldry, is the contrary of ermine, being a black field with white spots.

COUNTERFEITS, in law, are persons that obtain any money or goods by counterfeit letters or false tokens, who being convicted before justices of assize or of the peace, &c. are to suffer such punishment as shall be thought fit to be inflicted under death, as imprisonments, pillory, &c.

COUNTER-FOIL, or COUNTER-STOCK, in the exchequer, that part of an ally which is kept by an officer of the court.

COUNTER-*Guard*, in a fortification, is a work raised before the point of a bastion, consisting of two long faces parallel to the faces of the bastion, making a salient angle: they are sometimes of other shapes, or otherwise situated.

COUNTER-*Light*, or *Counter-jour*, a light opposite to any thing, which makes it appear to disadvantage. A single counter-light is sufficient to take away all the beauty of a fine painting.

COUNTER-*March*, in military affairs, a change of the face or wings of a battalion, by which means those that are in the front come to be in the rear. It also signifies returning, or marching back again.

COUNTER-*Mine*, in war, a well and gallery drove and sunk till it meet the enemy's mine to prevent its effect.

COUNTER-*Paled*, in heraldry, is when the escutcheon is divided into twelve pales parted per fesse, the two colours being counter-changed; so that the upper are of one colour and the lower of another.

COUNTER-*Part*, in music, denotes one part to be applied to another. Thus the bass is said to be a counter-part to the treble.

COUNTER-*Passant*, in heraldry, is when two lions are in a coat of arms, and the one seems to go quite the contrary way from the other.

COUNTER-*Point*, in music: a term derived from the Latin preposition *contra* and the verb *pungere*; because the musical characters by which the notes in each part are signified are placed in such a manner each with respect to each as to show how the parts answer one another. See COMPOSITION.

COUNTER-*Pointed* (*Contre-pointé*), in heraldry, is when two chevrons in one escutcheon meet in the points, the one rising as usual from the base, and the other inverted falling from the chief; so that they are counter to one another in the points. They may also be counter-pointed when they are founded upon the sides of the shield, and the points meet that way, called *counter-pointed in fesse*.

COUNTERPOISE, in the manege, is the liberty of the action and seat of a horse-man; so that in all the motions made by the horse, he does not incline his

body more to one side than to the other, but continues in the middle of the saddle, being equally on his stirrups, in order to give the horse the proper and seasonable aids.

COUNTER-POTENT (*Contre Potencé*), in heraldry, is reckoned a fur as well as vair and ermine; but composed of such pieces as represent the tops of crutches, called in French *potences*, and in old English *potents*.

COUNTER-*Proof*, in rolling press printing, a print taken off from another fresh printed; which by being passed through the press, gives the figure of the former, but inverted. To counter-prove, is also to pass a design in black-lead, or red chalk, through the press, after having moistened with a sponge both that and the paper on which the counter-proof is to be taken.

COUNTER-*Quartered* (*contre-ecartelé*), in heraldry, denotes the escutcheon, after being quartered, to have each quarter again divided into two.

COUNTER-*Saliant*, is when two beasts are borne in a coat leaping from each other directly the contrary way.

COUNTER-*Scarp*, in fortification, is properly the exterior talus or slope of the ditch; but it is often taken for the covered way and the glacis. In this sense we say, the enemy have lodged themselves on the counter-scarp. Angle of the counter-scarp, is that made by two sides of the counter-scarp, meeting before the middle of the curtain.

COUNTER-*Signing*, the signing the writing of a superior in quality of secretary. Thus charters are signed by the king, and counter-signed by a secretary of state, or lord chancellor.

COUNTER-*Time*, in the manege, is the defence or resistance of a horse that interrupts his cadence, and the measure of his manege, occasioned either by a bad horseman or by the malice of the horse.

COUNTER, is also the name of a counting-board in a shop, and of a piece of metal with a stamp on it, used in playing at cards.

COUNTER of a Horse, that part of a horse's forehead which lies between the shoulders and under the neck.

COUNTERS in a Ship are two. 1. The hollow arching from the gallery to the lower part of the straight piece of the stern, is called the *upper-counter*. 2. The lower counter is between the transom and the lower part of the gallery.

COUNTER, is also the name of two prisons in the city of London, viz. the Poultry and Woodstreet.

COUNTORS, COUNTOURS, or COUNTERS, has been used for serjeants at law, retained to defend a cause, or to speak for their client in any court of law.

It is of these Chaucer speaks:

— A sheriff had he been, and a contour,
Was no where such a worthy vavafour.

They were anciently called *serjeant contours*.

COUNTRIES, among the miners, a term or appellation they give to their works under ground.

COUNTRY, among geographers, is used indifferently to denote either a kingdom, province, or lesser district. But its most frequent use is in contradistinction to town.

COUNTRY-Dance is of English origin, though now transplanted into almost all the countries and courts of

Counter
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Country.

County.

Europe. There is no established rule for the composition of tunes to this dance, because there is in music no kind of time whatever which may not be measured by the motions common in dancing; and there are few song tunes of any note within the last century, that have not been applied to country-dances.

COUNTY, in geography, originally signified the territory of a count or earl, but now it is used in the same sense with shire; the one word coming from the French, the other from the Saxon.—In this view, a county is a circuit or portion of the realm; into fifty-two of which, the whole land, England and Wales, is divided for its better government and the more easy administration of justice.

For the execution of the laws in the several counties, excepting Cumberland, Westmoreland, and Durham, every Michaelmas term officers are appointed, under the denomination of *sheriffs*. Other officers of the several counties are, a lord lieutenant, who has the command of the militia of the county; custodes rotulorum, justices of peace, bailiffs, high-constable, and coroner.

Of the fifty-two counties, there are three of special note, which are therefore termed *counties palatine*, as Lancaster, Chester, and Durham. See PALATINE.

COUNTY-Corporate, is a title given to several cities, or ancient boroughs, on which our monarchs have thought fit to bestow extraordinary privileges; annexing to them a particular territory, land, or jurisdiction; and making them counties of themselves, to be governed by their own sheriffs and magistrates.

COUNTY-Court, in English law, a court, incident to the jurisdiction of the sheriff. It is not a court of record, but may hold pleas of debt or damages under the value of 40s. Over some of which causes these inferior courts have, by the express words of the statute of Gloucester, a jurisdiction totally exclusive of the king's superior courts. For in order to be intitled to sue an action of trespass for goods before the king's justiciars, the plaintiff is directed to make affidavit that the cause of action does really and *bone fide* amount to 40s. which affidavit is now unaccountably refused, except in the court of exchequer. The statute also 43 Eliz. c. 6. which gives the judges in many personal actions, where the jury assess less damages than 40s. a power to certify the same and abridge the plaintiff of his full costs, was also meant to prevent vexation by litigious plaintiffs; who, for purposes of mere oppression, might be inclinable to institute such suits in the superior courts for injuries of a trifling value. The county-court may also hold plea of many real actions, and of all personal actions to any amount, by virtue of a special writ called *justicies*; which is a writ empowering the sheriff for the sake of dispatch to do the same justice in this county-court, as might otherwise be had at Westminster. The freeholders of the county are the real judges in this court, and the sheriff is the ministerial officer. The great confux of freeholders, which are supposed always to attend at the county-court (which Spelman calls *forum plebeie justitie et theatrum comitivae potestatis*), is the reason why all acts of parliament at the end of every session were wont to be there published by the sheriff; why all outlawries of absconding offenders are there proclaimed; and why all popular elections which the

freeholders are to make, as formerly of sheriffs and conservators of the peace, and still of coroners, verderors, and knights of the shire, must ever be made *in pleno comitatu*, or in full county-court. By the statute 2. Edw. VI. c. 25. no county-court shall be adjourned longer than for one month, consisting of 28 days. And this was also the ancient usage, as appears from the laws of king Edward the elder: *prepositus* (that is the sheriff) *ad quartam circiter septimanam frequentem populi concionem celebrato; cuique jus dicito; litesque singulas dirimito*. In those times the county-court was a court of great dignity and splendour, the bishop and the ealdorman (or earl), with the principal men of the shire, sitting therein to administer justice both in lay and ecclesiastical causes. But its dignity was much impaired, when the bishop was prohibited, and the earl neglected to attend it. And, in modern times, as proceedings are removeable from hence into the king's superior courts, by writ of *pone* or *recordare*, in the same manner as from hundred-courts and courts-baron; and as the same writ of false judgment may be had, in nature of a writ of error, this has occasioned the same disuse of bringing actions therein.

COUPAR, the name of a town in Scotland, capital of the county of Fife, situated about 10 miles west of St. Andrew's: W. Long. 2. 40. N. Lat. 56. 20.—*Coupar* is also the name of a village in the shire of Angus, inhabited chiefly by weavers in the linen trade.

COUPED, in heraldry, is used to express the head, or any limb, of an animal, cut off from the trunk, smooth; distinguishing it from that which is called *erased*, that is, forcibly torn off, and therefore is ragged and uneven.

COUPED, is also used to signify such crosses, bars, bends, chevrons, &c. as do not touch the sides of the escutcheon, but are, as it were, cut off from them.

COUPEE, a motion in dancing, wherein one leg is a little bent, and suspended from the ground; and with the other a motion is made forwards.

The word in the original French signifies a *cut*.

COUPLE-CROSS, in heraldry, the fourth part of a chevron, never borne but in pairs, except there be a chevron between them, saith Guillim, though Bloom gives an instance to the contrary.

COUPLET, a division of a hymn, ode, song, &c. wherein an equal number, or equal measure, of verses, is found in each part; which divisions, in odes, are called *strophes*.—Couplet, by an abuse of the word, is frequently made to signify a couple of verses.

COURAGE, in ethics, is that quality of the mind, derived either from constitution or principle, or both, that enables men to encounter difficulties and dangers. See FORTITUDE.

COURANT, a French term synonymous with *current*, and properly signifies running. See CURRENT.

COURANT, is also a term in music and dancing; being used to express both the tune or air and the dance. With regard to the first, *courant*, or *currant*, is a piece of music in triple time: the air of the courant is ordinarily noted in triples of minims; the parts to be repeated twice. It begins and ends when he who beats the measure falls his hand; in contradistinction from the saraband, which ordinarily ends when the hand is raised. With regard to dancing, the courant was long the most common of all the dances practised

Coupar
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Courant.

Courap
Courayer.

in England: it consists, essentially, of a time, a step, a balance, and a coupee; though it also admits of other motions. Formerly they leaped their steps; in which point, the courrant differed from the low dance and pavades. There are simple courants and figured courants, all danced by two persons.

COURAP, the modern name for a distemper very common in Java and other parts of the East-Indies. It is a sort of herpes or itch on the arm-pits, groins, breast, and face: the itching is almost perpetual; and the scratching is followed by great pain and a discharge of matter, which makes the linen stick so to the skin as not easily to be separated without tearing off the crust. *Courap* is a general name for any sort of itch; but this distemper is thus called by way of eminence. It is so contagious that few escape it. For the cure, gentle and repeated purging is used, and externally the sublimate in a small quantity is a good topic.

COURAYER (PETER FRANCIS), a Roman Catholic clergyman, distinguished by great moderation, charity, and temper, concerning religious affairs, as well as by learning, was born at Vernon in Normandy, 1681. While canon regular and librarian of the abbey of St Genevieve at Paris, he applied to our archbishop Wake for the resolution of some doubts, concerning the episcopal succession in England, and the validity of our ordinations: he was encouraged to this by the friendly correspondence which had passed between the archbishop and M. du Pin of the Sorbonne. The archbishop sent him exact copies of the proper records; and on these he built his "Defence of English Ordinations," which was published in Holland, 1727. This exposing him to a prosecution in his own country, he took refuge in England; where he was well received, and presented the same year by the university of Oxford with a doctor's degree. As it is somewhat uncommon for a Roman Catholic clergyman to be admitted to degrees in divinity by Protestant universities, the curious may be gratified with a sight of the diploma, and the doctor's letter of thanks, in "The present State of the Republic of Letters, for June 1728. In 1736, he translated into French, and published, "Father Paul's History of the Council of Trent," in 2 vols. folio, and dedicated it to Queen Caroline; who augmented to 200*l.* a pension of 100*l.* a year, which he had obtained before from the court. The learned Jer. Markland, in a letter to his friend Bowyer, September 1746, says, "Mr Clarke has given me F. Courayer's translation of the History of the Council of Trent; with whose preface I am so greatly pleased, that if he be no more a Papist in other tenets than he is in those he mentions (which are many, and of the most distinguishing class), I dare say there are very few considerate Protestants who are not as good Catholics as he is." His works are many, and all in French: he translated Sleidan's "History of the Reformation." He died in 1776, after two days illness, at the age of 95; and was buried in the cloister of Westminster-abbey. In his will, dated Feb. 3d 1774, he declares, that he "dies a member of the Catholic church, but without approving of many of the opinions and superstitions which have been introduced into the Roman church, and taught in their schools and seminaries; and which they have insisted on as articles

of faith, though to him they appear to be not only not founded in truth, but also to be highly improbable." And his practice was conformable to this declaration; for at London he constantly went to mass, and at Ealing in the country, whither he often retired, as constantly attended the service of the parish church; declaring at all times, that he "had great satisfaction in the prayers of the church of England."

COURBARIL. See HYMENEAE.

COURIER, or CURRIER, (from the French *courir*, "to run,") a messenger sent post, or express, to carry dispatches.

Antiquity, too, had its couriers. We meet with two kinds: 1. Those who ran on foot, called by the Greeks *hemerodromi*, q. d. "couriers of a day." Pliny, Corn. Nepos, and Caesar, mention some of these who would run 20, 30, 36, and in the circus even 40 leagues per day. 2. Riding couriers (*cursores equestrantes*), who changed horses as the modern couriers do.

Xenophon attributes the first couriers to Cyrus. Herodotus says they were very ordinary among the Persians, and that there was nothing in the world more swift than these kind of messengers. "That prince (says Xenophon) examined how far a horse would go in a day; and built stables, at such distances from each other, where he lodged horses, and persons to take care of them; and at each place kept a person always ready to take the packet, mount a fresh horse, and forward it to the next stage: and thus quite through his empire."

But it does not appear that either the Greeks or Romans had any regular fixed couriers till the time of Augustus: under that prince they travelled in cars; though it appears from Socrates they afterwards went on horseback. Under the western empire they were called *viatores*; and under that of Constantinople, *cursores*: whence the modern name. See POST.

COURLAND, a duchy situated between E. Long. 21. 26. and between N. Lat. 56. 30. and 57. 30. It is bounded by the river Dwina, which divides it from Livonia, on the north; by Lithuania, on the east; by Samogitia, on the south; and by the Baltic sea on the west; being 130 miles long and 30 broad. This duchy was formerly independent, and elected their own duke; but is now subject to Russia.

COURSE (*route*), in navigation, the angle contained between the nearest meridian and that point of the compass upon which a ship sails in any particular direction.

COURSE, in architecture, denotes a continued range of stones, level, or of the same height, throughout the whole length of the building; and not interrupted by any aperture. It forms a parapet to the intermediate space between the body of the building and the wings.

COURSE of *Plinths*, is the continuity of a plinth of stone or plaster in the face of a building; to mark the separation of the stories.

COURSE is also used for the time ordinarily spent in learning the principles of a science, or the usual points and questions therein. Thus, a student is said to have finished his course in the humanity, in philosophy, &c.

COURSE

Courbaril
Course.

Course
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Coursing.

COURSE is also used for the elements of an art exhibited and explained, either in writing or by actual experiment. Hence our courses of philosophy, anatomy chemistry, mathematics, &c. probably so called as going throughout or running the whole length or course of the art, &c.

COURSES, a name by which the principal sails of a ship are distinguished, viz the main-sail, the fore-sail, and the mizen: the mizen-stay-sail and fore-sail are also sometimes comprehended in this denomination; as are the main-stay sails of all brigs and schooners. See SAIL.

COURSING, among sportsmen. There are three several sorts of courses with gre-hounds: 1. At the hare; 2. At the fox; and, 3. At the deer.

For the *deer*, there are two sorts of courses; the one in the paddock, the other either in the forest or the purlieu. For the paddock course, there must be the gre-hound and the terrier, and the mongrel gre-hound, whose business it is to drive away the deer before the gre-hounds are slipped; a brace or a leash are the usual number slipped at a time, seldom at the utmost more than two brace. In coursing the deer in the forest or purlieu, there are two ways in use: the one is coursing from wood to wood; and the other, upon the lawns close by the keeper's lodge. In the coursing from wood to wood, the way is to throw in some young hounds into the wood to bring out the deer; and if any deer come out that is not weighty, or a deer or antler which is buck, sore, or sorrel, then you are not to slip your gre-hounds, which are held at the end of the wood, where the keepers, who can guess very well on these occasions, expect that the deer will come out. If a proper deer come out, and it is suspected that the brace or leash of gre-hounds slipped after him will not be able to kill him, it is proper to waylay him with a couple of fresh gre-hounds.

The coursing upon the lawn is the most agreeable of all other ways. When the keeper has notice of this, he will lodge a deer for the course; and then, by coming under the wind, the gre-hound may be brought near enough to be slipped for a fair course.

The best method of coursing the *hare*, is to go out and find a hare sitting; which is easily done in the summer, by walking across the lands, either stubble, fallow, or corn grounds, and casting the eye up and down: for in summer they frequent those places for fear of the ticks, which are common in the woods at that season; and in autumn the rains falling from the trees offend them. The rest of the year there is more trouble required; as the bushes and thickets must be beat to rouse them, and oftentimes they will lie so close, that they will not stir till the pole almost touches them: the sportsmen are always pleased with this, as it promises a good course. If a hare lies near any close or covert, and with her head that way, it is always to be expected that she will take to that immediately on being put up; all the company are therefore to ride up and put themselves between her and the covert before she is put up, that she may take the other way, and run upon open ground. When a hare is put up, it is always proper to give her ground, or *law*, as it is called; that is, to let her run 12 score yards, or thereabouts, before the gre-hounds are slip-

ped at her; otherwise she is killed too soon, the greater part of the sport is thrown away, and the pleasure of observing the several turnings and windings that the creature will make to get away is all lost. A good sportsman had rather see a hare save herself after a fair course, than see her murdered by the gre-hounds as soon as she is up.

In coursing the *fox*, no other art is required, than standing close, and in a clear wind, on the outside of some grove where it is expected he will come out; and when he is come out, he must have head enough allowed him, otherwise he will return back to the covert. The slowest gre-hound will be able to overtake him, after all the odds of distance necessary; and the only danger is the spoiling the dog by the fox, which too frequently happens. For this reason, no gre-hound of any value should be run at this course; but the strong, hard, bitter dogs, that will seize any thing.

The laws of coursing established by the duke of Norfolk, and other sportsmen of the kingdom of England, are these:

1. He that is chosen *fewterer* or *letter-loose* of the dogs, shall receive the gre-hounds matched to run together into his leash as soon as he comes into the field; he is to march next to the hare-finder, or him who is to start the hare, until he come to the form; and no horseman or footman is to go before or sideways, but all straight behind, for the space of about 40 yards.
2. A hare ought never to be coursed with more than a brace of gre-hounds.
3. The hare-finder is to give the hare three *sohocs* before he puts her up from her form or seat, to the end that the dogs may be prepared and attend her starting.
4. If there be not a particular danger of losing the hare, she should have about twelve score yards law.
5. The dog that gives the first turn, if after that there be neither, *cote*, *flip*, nor *wrench*, wins the wager.
6. A *go-by*, or bearing the hare, is counted equivalent to two turns.
7. If neither dog turns the hare, he that leads to the last covert wins.
8. If any dog turns the hare, serves himself, and turns her again, it is as much as a *cote*, and a *cote* is esteemed as much as two turns.
9. If all the course be equal, he that bears the hare shall win; and if he be not borne, the course shall then be judged *dead*.
10. If a dog take a fall in his course, and yet perform his part, he may challenge the advantage of a turn more than he gave.
11. If a dog turn the hare, serve himself, and give divers *cotes*, and yet in the end shall stand still in the field, the other dog, if he turns home to the covert, although he gives no other, shall be adjudged to win the wager.
12. If by misfortune a dog be rid over in the course, that course shall be adjudged void, and he that did the mischief is to make reparation to the owner.
13. If a dog gives the first and last turn, and there be no other advantage betwixt them, he that gives the odd turn wins.
14. A *cote* is when a gre-hound goes endways by the side of his fellow, and gives the hare a turn.
15. A *cote* serves for two turns, and two trippings or jerkings for a *cote*; and if the hare turns not quite about, she only *wrencheth*, in the sportsman's phrase.
16. If there be no *cotes* given by either of the gre-hounds, but one serves the other at turning, then he that gives the most turns wins the wager.
- 17.

Coursing.

Court.

Sometimes a hare does not turn, but wrenches; for she does not turn except she turns as it were round. In these cases, two wrenches stand for one turn. 18. He that comes in first at the death of the hare takes her up, and saves her from breaking; he cherishes the dogs, and cleanses their mouths from the wool; he is adjudged to have the hare for his pains. 19. Finally, those who are judges of the leash, must give their judgment before they depart out of the field, or else it is not to stand as valid.

COURT, an appendage to a house or habitation; consisting of a piece of ground inclosed with walls, but open upwards.

COURT is also used for the palace or place where a king or sovereign prince resides.

Blackst.
Comment.

COURT, in a law sense, is defined to be a place wherein justice is judicially administered. And as, by our excellent constitution, the sole executive power of the laws is vested in the person of the king, it will follow that all courts of justice, which are the medium by which he administers the laws, are derived from the power of the crown. For whether created by act of parliament or letters patent, or subsisting by prescription (the only methods by which any court of judicature can exist), the king's consent in the two former is expressly, and in the latter impliedly, given. In all these courts, the king is supposed in contemplation of law to be always present; but as that is in fact impossible, he is there represented by his judges, whose power is only an emanation of the royal prerogative.

For the more speedy, universal, and impartial administration of justice between subject and subject, the law hath appointed a prodigious variety of courts, some with a more limited, others with a more extensive jurisdiction; some constituted to inquire only, others to hear and determine; some to determine in the first instance, others upon appeal and by way of review. See LAW, n^o xcvi. xcix. c. cxli. clvi. clvii. clviii. and the respective articles in the order of the alphabet. One distinction may be here mentioned, that runs throughout them all; viz. that some of them are courts of record, others not of record. A court of record is that where the acts and judicial proceedings are enrolled in parchment for a perpetual memorial and testimony: which rolls are called the *records of the court*, and are of such high and supereminent authority, that their truth is not to be called in question. For it is a settled rule and maxim, that nothing shall be averred against a record, nor shall any plea, or even proof, be admitted to the contrary. And if the existence of a record be denied, it shall be tried by nothing but itself; that is, upon bare inspection whether there be any such record or no; else there would be no end of disputes. But if there appear any mistake of the clerk in making up such record, the court will direct him to amend it. All courts of record are the king's courts, in right of his crown and royal dignity, and therefore no other court hath authority to fine or imprison; so that the very erection of a new jurisdiction with power of fine or imprisonment, makes it instantly a court of record.—A court not of record is the court of a private man; whom the law will not intrust with any discretionary power over the fortune or liberty of his fellow-subjects. Such are the courts-

baron incident to every manor, and other inferior jurisdictions: where the proceedings are not enrolled or recorded; but as well their existence as the truth of the matters therein contained shall, if disputed, be tried and determined by a jury. These courts can hold no plea of matters cognizable by the common law, unless under the value of 40s.; nor of any forcible injury whatsoever, nor having any process to arrest the person of the defendant.

In every court there must be at least three constituent parts, the *actor*, *reus*, and *judex*: the *actor*, or plaintiff, who complains of an injury done; the *reus*, or defendant, who is called upon to make satisfaction for it; and the *judex*, or judicial power, which is to examine the truth of the fact, to determine the law arising upon that fact, and, if any injury appears to have been done, to ascertain, and by its officers to apply the remedy. It is also usual in the superior courts to have attorneys, and advocates or counsel, as assistants. See ATTORNEY and COUNSEL.

COURT-BARON, in English law, a court incident to every manor in the kingdom, to be holden by the steward within the said manor. This court-baron is of two natures: the one is a customary court, appertaining entirely to the copyholders, in which their estates are transferred by surrender and admittance, and other matters transacted relative to their tenures only. The other is a court of common law, and it is the court of the *barons*, by which name the freeholders were sometimes anciently called: for that it is held before the freeholders who owe suit and service to the manor, the steward being rather the registrar than the judge. These courts, though in their nature distinct, are equally confounded together. The court we are now considering, viz. the freeholder's court, was composed of the lord's tenants, who were the *pares* of each other, and were bound by their feudal tenure to assist their lord in the dispensation of domestic justice. This was formerly held every three weeks; and its most important business is to determine, by writ of right, all controversies relating to the right of lands within the manor. It may also hold plea of any personal actions, of debt, trespass on the case, or the like, where the debt or damages do not amount to 40s. Which is the same sum, or three marks, that bounded the jurisdiction of the ancient Gothic courts in their lowest instance, or *fiending courts*, so called because four were instituted within every superior district or hundred. But the proceedings on a writ of right may be removed into the county-court by a precept from the sheriff called a *tolt*, *quia tollit atque eximit causam e curia baronum*. And the proceedings in all other actions may be removed into the superior courts of the king's writs of *pone*, or *accedas ad curiam*, according to the nature of the suit. After judgment given, a writ also of *false judgment* lies to the courts at Westminster to rehear and review the cause, and not a writ of *error*; for this is not a court of record: and therefore, in some of these writs of removal, the first direction given is to cause the plaint to be recorded, *recordari facias loquelam*.

COURT-Martial, a court appointed for the punishing offences in officers, soldiers, and sailors, the powers of which are regulated by the mutiny-bill.

For other courts, see ADMIRALTY, ARCHES, BENCH, COUNTY,

Court.

Courtesy
||
Coutances.

COUNTY, COMMON-*Phas*, CHANCERY, ECCLESIASTICAL, DUCHY, FACULTY, REQUESTS, HUSTINGS, CHIVALRY, FOREST, STANNARY, STAR-*Chamber*, PREROGATIVE, UNIVERSITY, LEGATE, LEET, MAYOR, PIEPOUDRE, &c.

COURTESY, or CURTESY, of *England*; a certain tenure whereby a man marrying an heiress seized of lands of fee simple, or fee-tail general, or seized as heir of the tail special, and getteth a child by her that cometh alive into the world, though both it and his wife die forthwith; yet, if she were in possession, he shall keep the land during his life, and is called *tenant per legem Anglie*, "or tenant by the courtesy of England;" because this privilege is not allowed in any country except Scotland, where it is called *curialitas Scotie*.

COURTESAN, a woman who prostitutes herself for hire, especially to people of superior rank. Lais, the famous Theban courtesan, stands on record for requiring no less than 10,000 crowns for a single night. Of all places in the world, Venice is that where courtesans abound the most. It is now 300 years since the senate, which had expelled them, was obliged to recal them; in order to provide for the security of women of honour, and to keep the nobles employed lest they should turn their heads to make innovations in the state.

COURTRAY, a town of the Austrian Netherlands, situated on the river Lys, about 23 miles south west of Ghent, and 14 east of Ypres. E. Long. 3. 10. N. Lat. 50. 48.

COUSIN, a term of relation between the children of brothers and sisters, who in the first generation are called *cousin-germans*, in the second generation *second-cousins*, &c. If sprung from the relations of the father's side, they are denominated *paternal* cousins; if on the mother's, *maternal*.

The word is ordinarily derived from *consanguineus*; though Menage brings it from *congenius*, or *congeneus*, q. d. *ex eodem genere*.

In the primitive times, it was allowed cousin-germans to marry, to prevent their making alliances in heathen families: but Theodosius the Great prohibited it, under pain of death; on pretence that they were, in some sort, brothers and sisters with regard to each other.

COUSIN (John); a celebrated French painter, who excelled in painting on glass. His picture of the Last Judgment, in the vestry of the Minims of the Wood of Vincennes, is much admired. He was also a good sculptor. He wrote several works on geometry and perspective; and died after the year 1689.

COUSU, in heraldry, signifies a piece of another colour or metal placed in the ordinary, as if it were sewed on, as the word imports. This is generally of colour upon colour, or metal upon metal, contrary to the general rule of heraldry.

COUTANCES, a port town of Normandy, and capital of Coutantin, in W. Long. 1. 32. Lat. 49. 10. This town, anciently called *Constantia* or *Cosedia*, is pleasantly situated among meadows and rivulets about six miles distant from the sea. By the remains of a Roman aqueduct, and other ancient ruins, it appears to be a place of great antiquity. It is the see of a bishop suffragan of Rome; and has a magnificent cathe-

dral, esteemed one of the finest pieces of Gothic architecture in Europe. The trade of this town is very inconsiderable, and the fortifications are quite demolished. They have several religious houses, and two parochial churches.

COUTHUTLAUGH, from the Saxon *couth*, "knowing" and *utlaugh*, "outlaw;" he that wittingly receives a man outlawed, and cherishes or conceals him: for which offence he was in ancient times subject to the same punishment with the outlaw himself.

COVERT, in heraldry, denotes something like a piece of hanging, or a pavilion falling over the top of a chief or other ordinary, so as not to hide, but only to be a covering to it.

COW, in zoology. See BOS.

Cow-Burner. See BUPRESTIS.

Sea-Cow, in zoology. See TRICHECUS.

Cow-Itch, or *coubage*, in botany. See COUHAGE, and DOLICHOS.

Cow's-Lip, in botany. See PRIMULA.

COWARD, in heraldry, a term given to a lion borne in an escutcheon with his tail doubled, or turned in between his legs.

COWEL (Dr John), a learned and eminent civilian, born about the year 1554. In 1607 he compiled a *Law Dictionary*, which gave great offence to Sir Edward Coke and the common lawyers: so that they first accused him to James I. as asserting that the king's prerogative was in some cases limited; and when they failed in that attempt, they complained of him to the house of commons, as a betrayer of the rights of the people, by asserting that the king was not bound by the laws; for which he was committed to custody, and his book publicly burnt. He also published *Institutiones Juris Anglicani*, in the manner of Justinian's Institutes; and died in the operation for the stone, in 1611.

COWES, a town and harbour on the north-east coast of the Isle of Wight, in Hampshire. It has no market, but is the best place for trade in the whole island; but as it lies low, the air is accounted unhealthy. It is eight miles south east of Portsmouth. W. Long. 1. 25. N. Lat. 50. 45.

COWL, or COUL, a sort of monkish habit worn by the Bernardines and Benedictines. The word is formed from *cucullus*, by confounding the two first syllables into one, as being the same twice repeated.—There are two kinds of cowls: the one white, very large, worn in ceremony, and when they assist at the office; the other black, worn on ordinary occasions, in the streets, &c.

F. Mabillon maintains the coul to be the same thing in its origin with the scapular. The author of the apology of the Emperor Henry IV. distinguishes two forms of cowls: the one is a gown reaching to the feet, having sleeves, and a capuchin, used in ceremonies; the other a kind of hood to work in, called also a *scapular*, because it only covers the head and shoulders.

COWLEY (Abraham), an eminent poet, was born at London 1618. His father, who was a grocer, dying before he was born, his mother procured him to be admitted a king's scholar at Westminster. His first inclination to poetry arose on his lighting on Spencer's *Fairy Queen*, when he was but just able to read: and this inclination so far

Couthut
||
laugh
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Cowley.

Cowley. far improved in him, that at 13 he began to write several poems; a collection of which was published in 1613, when he was but 15. He has been represented as possessed of so bad a memory that his teachers could never bring him to retain the ordinary rules of grammar. But the fact was, as Dr Johnson notices, not that he could not learn or retain the rules; but that being able to perform his exercises without them, he spared himself the labour. In 1636 he was elected a scholar of Trinity College, Cambridge, and removed to that university. Here he went through all his exercises with a remarkable degree of reputation; and at the same time must have pursued his poetical turn with great eagerness, as it appears that the greatest part of his poems were written before he left that university. He had taken his degree of Master of arts before 1643, when, in consequence of the turbulence of the times, he, among others, was ejected from the college: whereupon, retiring to Oxford, he entered himself of St John's college: and that very year, under the denomination of a *scholar of Oxford*, published a satire called the Puritan and the Papist. It is apparent, however, that he did not remain very long at Oxford: for his zeal to the royal cause engaging him in the service of the king, who was very sensible of his abilities, and by whom he was frequently employed, he attended his majesty in many of his journeys and expeditions, and gained not only that prince's esteem, but that of many other great personages, and in particular of Lord Falkland, one of the principal secretaries of state.

During the heat of the civil war, he was settled in the Earl of St Alban's family; and when the queen-mother was obliged to retire into France, he accompanied her thither, laboured strenuously in the affairs of the royal family, undertook several very dangerous journeys on their account, and was the principal instrument in maintaining an epistolary correspondence between the king and queen, whose letters he cyphered and decyphered with his own hand. His poems, intitled *The Mistress*, were published at London in 1647; and his comedy called *The Guardian*, afterwards altered and published under the title of *Cutter of Coleman-street*, in 1650. In 1656 it was thought proper by those on whom Mr Cowley depended that he should come over into England, and, under pretence of privacy and retirement, should give notice of the posture of affairs in this nation. Upon his return he published a new edition of all his poems, consisting of four parts; viz. I. *Miscellanies*. II. *The Mistress*, or *Several Copies of Love-Verfes*. III. *Pindarique Odes*, written in imitation of the style and manner of Pindar. IV. *Davidis*, a sacred Poem of the troubles of David, in four books.

Soon after his arrival, however, he was seized, in the search after another gentleman of considerable note in the king's party: but although it was through mistake that he was taken, yet when the republicans found all their attempts of every kind to bring him over to their party proved ineffectual, he was committed to a severe confinement, and it was even with considerable difficulty that he obtained his liberty; when, venturing back to France, he remained there, in his former situation, till near the time of the king's re-

turn. During his stay in England he wrote his *Two Books of Plants*, published first in 1662; to which he afterwards added four books more; and all six, together with his other Latin poems, were printed at London in 1678. It appears by Mr Wood's *Fasti Oxonienses*, that our poet was created doctor of physic at Oxford, December 2. 1657.

Soon after the restoration he became possessed of a very competent estate, through the favour of his principal friends the duke of Buckingham and the earl of St Alban's; and being now upwards of 40 years of age, he took up a resolution to pass the remainder of a life which had been a scene of tempest and tumult, in that situation which had ever been the object of his wishes, a studious retirement. His eagerness to get out of the bustle of a court and city made him less careful than he might have been in the choice of a healthful habitation in the country; by which means he found his solitude from the very beginning suit less with the constitution of his body than with his mind. His first rural residence was at Barn Elms, a place which, lying low, and being near a large river, was subject to a variety of breezes from land and water, and liable in the winter-time to great inconvenience from the dampness of the soil. The consequence of this Mr Cowley too soon experienced, by being seized with a dangerous and lingering fever. On his recovery from this he removed to Chertsey, a situation not much more healthy, where he had not been long before he was seized with another consuming disease. Having languished under this for some months, he at length got the better of it, and seemed pretty well recovered from the bad symptoms; when one day in the heat of summer 1667, staying too long in the fields to give some directions to his labourers, he caught a most violent cold, which was attended with a deluxion and stoppage in his breast; and for want of timely care, by treating it as a common cold, and refusing advice till it was past remedy, he departed this life on the 28th of July in that year, being the 49th of his age; and, on the 3d of August following, he was interred in Westminster-abbey, near the ashes of Chaucer and his beloved Spencer. He was a man of a very amiable character, as well as an admirable genius. King Charles II. on the news of his death, declared "that Mr Cowley had not left a better man behind him in England." A monument was erected to his memory by George Villiers duke of Buckingham in 1675.

Besides the work already mentioned, Mr Cowley wrote, among other things, *A Proposition for the Advancement of Experimental Philosophy*; *A Discourse by way of Vision concerning the Government of Oliver Cromwell*; and *Several Discourses by way of Essays in prose and verse*. Mr Cowley had designed also a discourse concerning *Style*, and a *Review of the Principles of the Primitive Christian Church*, but was prevented by death. A spurious piece, intitled *The Iron Age*, was published under Mr Cowley's name during his absence; and, in Mr Dryden's *Miscellany Poems*, we find *A Poem on the Civil War*, said to be written by our author, but not extant in any edition of his works. An edition of his works was published by Dr Spratt, afterwards bishop of Rochester, who also prefixed to it an account of the author's

Cowley. thor's life. The reverend editor mentions, as very excellent of their kind, Mr Cowley's letters to his Friends; none of which, however, were published.

The moral character of Mr Cowley appears, from every account of it, to have been very excellent. "He is represented by Dr Spratt (says Dr Johnson) as the most amiable of mankind; and this posthumous praise may be safely credited, as it has never been contradicted by envy or by faction."

As a poet, his merits have been variously estimated, Lord Clarendon has said he made a flight above all men; Addison, in his account of the English poets, that he improved upon the Theban bard; the duke of Buckingham upon his tomb-stone, that he was the English Pindar, the Horace, the Virgil, the delight, the glory, of his times. And with respect to the harshness of his numbers, the eloquent Spratt tells us, that if his verses in some places seem not as soft and flowing as one would have them, it was his choice and not his fault.

"Such (says Mr Knox) is the applause lavished on a writer who is now seldom read. That he could ever be esteemed as a pindaric poet, is a curious literary phenomenon. He totally mistook his own genius when he thought of imitating Pindar. He totally mistook the genius of Pindar, when he thought his own incoherent sentiments and numbers bore the least resemblance to the wild yet regular sublimity of the Theban. He neglected even those forms, the strophe, antistrophe, and epode, which even imitative dulness can copy. Sublime imagery, vehement pathos, poetic fire, which constitute the essence of the Pindaric ode, are incompatible with witty conceits, accurate antitheses and vulgar expression. All these imply the equalness of deliberate composition, or the meanness of a little mind; both of them most repugnant to the truly Pindaric ode, in which all is rapturous and noble. Wit of any kind would be improperly displayed in such composition; but to increase the absurdity, the wit of Cowley is often false. That he had a taste for Latin poetry, and wrote in it with elegance, the well known epitaph on himself, upon his retirement, and an admirable imitation of Horace, are full proofs. But surely his rhetorical biographer makes use of the figure hyperbole, when he affirms that Cowley has excelled the Romans themselves. He was inferior to many a writer of less fame in the *Musæ Anglicanæ*. But still he had great merit; and I must confess I have read his Latin verses with more pleasure than any of his English can afford." *Essays*, vol. ii. p. 363—365.

To Cowley's compositions in prose, Mr Knox hath paid a very honourable testimony. He says, that in this department he is an elegant, a pleasing, a judicious writer; and that it is much to be lamented that he did not devote a greater part of his time to a kind of writing which appeared natural to him, and in which he excelled.

Dr Joseph Warton observes, that it is no caricature of Cowley to represent him as being possessed of a strained affectation of striving to be witty upon all occasions. "It is painful (adds this excellent critic) to censure a writer of so amiable a mind, such integrity of manners, and such a sweetness of temper. His fancy was brilliant, strong, and sprightly; but his taste

false and unclassical, even though he had much learning."

Dr Beattie has characterised Cowley in the following terms. "I know not whether any nation ever produced a more singular genius than Cowley. He abounds in tender thoughts, beautiful lines, and emphatical expressions. His wit is inexhaustible, and his learning extensive; but his taste is generally barbarous, and seems to have been formed upon such models as Donne, Martial, and the worst parts of Ovid: nor is it possible to read his longer poems with pleasure, while we retain any relish for the simplicity of ancient composition. If this author's ideas had been fewer, his conceits would have been less frequent; so that in one respect learning may be said to have hurt his genius. Yet it does not appear that Greek and Latin did him any harm; for his imitations of Anacreon are almost the only parts of him that are now remembered or read. His Davideis, and his translations of Pindar, are destitute of harmony, simplicity, and every other classical grace."

But the works of this celebrated poet have been nowhere so amply criticised as in his Life by Dr Johnson. After a particular examination of the different pieces, the Doctor, in taking a general review of Cowley's poetry, observes, That he wrote with abundant fertility, but negligent or unskilful selection; with much thought, but with little imagery; that he is never pathetic, and rarely sublime, but always either ingenious or learned, either acute or profound." Of his prose he speaks with great approbation, "No author (says he) ever kept his verse and his prose at a greater distance from each other. His thoughts are natural, and his style has a smooth and placid equability, which has never yet obtained its due commendation. Nothing is far-fought or hard laboured; but all is easy without feebleness, and familiar without grossness." Upon the whole, he concludes as follows: "It may be affirmed, without any encomiastic fervour, that he brought to his poetic labours a mind replete with learning, and that his passages are embellished with all the ornaments which books could supply; that he was the first who imparted to English numbers the enthusiasm of the greater ode and the gaiety of the less; that he was qualified for sprightly fallies and for lofty flights: that he was among those who freed translation from servility, and, instead of following his author at a distance, walked by his side; and that he had left versification yet improvable, he left likewise from time to time such specimens of excellence as enabled succeeding poets to improve it."

So many of Cowley's productions being now esteemed scarcely worthy of a perusal, while others of them are distinguished by their beauty, Dr Aurd (the present bishop of Worcester) thought proper to make a selection of them, which he published in 1772, under the title of *Select Works of Mr Abraham Cowley*, in two volumes; with a preface and notes by the Editor.

COX (Richard), a learned prelate, and principal pillar of the Reformation, was born at Whaddon in Buckinghamshire, of low parentage, in the year 1499. From Eaton school he obtained a scholarship in King's college in Cambridge, of which he became a fellow in

Cowley.
Cox.

Cox.

1519: he was thence invited to Oxford by Cardinal Wolsey, and was there made one of the junior canons of Cardinal College. In 1525 he was incorporated bachelor; and the following year took the degree of master of arts in the same university. In this situation he became remarkable for his learning and poetical abilities; but his attachment to the opinions of Luther rendered him hateful to his superiors, who stripped him of his preferment, and threw him into prison on a suspicion of heresy. Being, however, soon released, he was chosen master of Eaton school, which flourished remarkably under his care. In 1537 he commenced doctor of divinity at Cambridge; in 1540 was made archdeacon of Ely; and the following year prebendary of that cathedral, on its being new founded by king Henry VIII. In 1546 he was made dean of Christ-church, Oxford. By the recommendation of Archbishop Cranmer and Bishop Goodrich, to the latter of whom he had been chaplain, he not only obtained the above preferments, but was chosen preceptor to prince Edward; on whose accession to the throne he became a favourite at court, was sworn of the privy council, and made king's almoner. In 1547 he was elected chancellor of Oxford; in 1548 canon of Windsor; and the next year dean of Westminster. About this time he was appointed one of the commissioners to visit the university of Oxford; in which office his zeal for reformation was so excessive, that he destroyed a number of curious and valuable books, for no better reason than because they were written by Roman Catholics. On the accession of Queen Mary he was stripped of all his preferments and committed to the Marshalsea. He was, however, soon released, and immediately left the kingdom. Having resided some time at Strasburgh with his intimate friend Peter Martyr, on the death of Queen Mary he returned to England, and, with other divines, was appointed to revise the liturgy. He often preached before the queen; and in 1559 was preferred to the see of Ely, which he continued to enjoy upwards of 21 years. He was, however, no favourite with the queen: the reason assigned for which was, his zealous opposition to her retaining the crucifix and wax-candles on the altar of the royal chapel; also his strenuous defence of the marriage of the clergy, which her majesty always disapproved. He died on the 22d of July 1581, aged 81. He was a man of considerable learning, a zealous and rigid bulwark of the church of England, and an implacable enemy both to Papists and Puritans. In a letter to Archbishop Parker, he advises him to proceed vigorously in reclaiming or *punishing* the Puritans, and not to be discouraged at the frown of those court-favourites who protected them; assuring him that he might expect the blessing of God on his *pious* labours to free the church from their dangerous attempts, and to establish uniformity.—This zealous reformer we find had not totally lost sight of the popish text, *compel them to come in*: but a stronger proof of his implacability and self-importance appears in his letter to the lord treasurer Burleigh, in which he warmly expostulates with the council for interposing in behalf of the Puritans, or meddling in affairs of the church, admonishing them to keep their own sphere. Such language from a bishop would make a modern privy council stare. His works are, 1. Two Latin Orations on the Dispute

between Dr Tresham and Peter Martyr, Lond. 1549, 4to. 2. Liturgy of the Church of England; in compiling, and afterwards correcting which, he was principally concerned. 3. The Lord's Prayer in verse, commonly printed at the end of David's Psalms by Sternhold and Hopkins. 4. Translation of the four Gospels, the Acts of the Apostles, and the Epistle to the Romans, in the new translation of the Bible in the reign of Queen Elizabeth. 5. Resolutions of some Questions concerning the Sacrament, in the Collection of Records at the end of Burnet's History of the Reformation. 6. Several Letters to the Queen and others, published in Strype's Annals of the Reformation. He is also said to have been concerned in the declaration concerning the divine institution of bishops, and to have assisted Lilye in his Grammar.

COXWOLD, a town in the North-riding of Yorkshire, 14 miles north of York. W. Long, 1. 10. N. Lat. 54. 16.

COYPEL (Anthony), an excellent French painter, born at Paris in 1661. Noel Coypel, his father, being chosen by M. Colbert to be director of the academy at Rome, he took his son with him into Italy, where Anthony Coypel formed himself on the works of the greatest masters, and on his return to France was made first painter to the Duke of Orleans. That prince employed him in painting the grand gallery of the royal palace, and allowed him a pension. In 1714, he was director of the Academy of Painting and Sculpture. In 1715, he was made the first painter to the French king, and was ennobled on account of his merit. He died in 1722. M. Coypel, his son, also excelled in the same art.

COZENING; tricking, or defrauding.—In law, it denotes an offence where any thing is done deceitfully, whether belonging to contracts or not, which cannot be properly termed by any special name.

COZUMEL, an island near the western coast of Yucatan, where Cortez landed and refreshed his troops before entering upon the conquest of Mexico. W. Long. 89. 0. and N. Lat. 13. 0.

CRAB, in zoology. See CANCER.

CRAB'S *Claws*, in the materia medica, are the tips of the claws of the common crab broken off at the verge of the black part, so much of the extremity of the claws only being allowed to be used in medicine as is tinged with this colour. The blackness, however, is only superficial; they are of a greyish white within, and when levigated furnish a tolerable white powder.

Crab's claws are of the number of the alkaline absorbents, but they are superior to the generality of them in some degree, as they are found on a chemical analysis to contain a volatile urinous salt.

CRAB'S *Eyes*, in pharmacy, are a strong concretion in the head of the cray-fish. They are rounded on one side, and depressed and sinuated on the other, considerably heavy, moderately hard, and without smell. We have them from Holland, Muscovy, Poland, Denmark, Sweden, and many other places.

Crab's eyes are much used both in the shop-medicines and extemporaneous prescription, being accounted not only absorbent and drying, but also discutient and diuretic.

CRAB-LICE, a troublesome kind of vermin, which stick

Coxwold

Crab.

Crab,
Cracatoa.

stick so fast with their claws to the skin as to render it difficult to dislodge them. Being viewed with a glass they nearly resemble the small crab-fish; whence they obtained their popular name. They are also called *plutulae*, *morpiones*, *petole*, and *peffolatae*: they usually infest the arm-pits and *pudenda*. They will be quickly destroyed, and drop off dead, upon the application of a rag wet with the milk of sublimate. This sort of vermin is reckoned to prognosticate speedy mortality to those whom they abandon without being removed by medicine.

CRAB, a sort of wooden pillar, whose lower end, being let down through a ship's decks, rests upon a socket like the capstern; and having in its upper end three or four holes, at different heights, through the middle of it, one above another, into which long bars are thrust, whose length is nearly equal to the breadth of the deck. It is employed to wind in the cable, or to purchase any other weighty matter which requires a great mechanical power. This differs from a capstern, as not being furnished with a *drum-head*, and by having the bars to go entirely through it, reaching from one side of the deck to the other; whereas those of the capstern, which are superior in number, reach only about eight inches or a foot into the drum-head, according to the size thereof. This machine is represented in Plate CXXVII. n^o 4. See also CAPSTERN.

CRAB-Yaws, a name in Jamaica for a kind of ulcer on the soles of the feet, with hard callous lips, so hard that it is difficult to cut them. The *ungt. cerul. fort.* is their cure.

CRACATOA, the most southerly of a cluster of islands lying in the entrance of the straits of Sunda in the East Indies. Its whole circumference does not exceed nine miles: and off its north-eastern extremity is a small island forming a road, in which Captain Cook anchored when visiting this island on his last voyage. On the southern part of the small island is a reef of rocks, within which is a tolerable shelter against all northerly winds, there being 27 fathoms water in the mid channel, and 18 near the reef. Between the two islands there is a narrow passage for boats. The shore that constitutes the west side of the road runs in a north-westerly direction, having a bank of coral running into the sea for a little way, so that it is difficult for boats to land except at the time of high water; but the anchoring ground is very good and free from rocks. In the inland parts the ground is elevated, rising on all sides gradually from the sea, and is entirely covered with wood, excepting a few spots which are cleared by the inhabitants for sowing rice. The climate is reckoned very healthy in comparison with the neighbouring countries, but is very thinly inhabited. There are abundance of turtle on the coral reefs; but other refreshments are scarce, and sold at an exorbitant price. Water is not plentiful: Captain Cook was obliged to supply himself from a small spring opposite to the southern extremity of the small island above mentioned. To the southward is a hot spring, whose waters are used as a bath by the inhabitants. The road where the Resolution anchored lies in S. Lat. 8. 6. and by observation, in 105. 36. E. Long. by the time-keeper in 104. 48. The variation of the compass one degree W. On the full and

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change days it is high water at seven o'clock in the morning, and the tide rises three feet four inches perpendicular.

CRACKOW, a city of Poland, situated in a palatinate of the same name, E. Long. 20. 16. N. Lat. 50. 8. It was formerly the capital of Poland, where the kings were elected and crowned, and was once almost the centre of the Polish dominions, but is now a frontier town; a proof how much the power of this republic has been contracted.

Crackow stands in an extensive plain, watered by the Vistula, which is broad but shallow: the city and its suburbs occupy a vast track of ground, but are so badly peopled, that they scarcely contain 16,000 inhabitants. The great square in the middle of the town is very spacious, and has several well-built houses, once richly furnished and well inhabited, but most of them now either untenanted or in a state of melancholy decay. Many of the streets are broad and handsome; but almost every building bears the most striking marks of ruined grandeur: the churches alone seem to have preserved their original splendor. The devastation of this unfortunate town was begun by the Swedes at the commencement of the present century, when it was besieged and taken by Charles XII. but the mischiefs it suffered from that ravager of the north were far less destructive than those it experienced during the late dreadful commotions, when it underwent repeated sieges, and was alternately in possession of the Russians and Confederates. The effects of cannon, grape, and musket shot, are still discernible on the walls and houses. In a word, Crackow exhibits the remains of ancient magnificence, and looks like a great capital in ruins: from the number of fallen and falling houses one would imagine it had lately been sacked, and that the enemy had left it only yesterday. The town is surrounded with high walls of brick, strengthened by round and square towers of whimsical shapes, in the ancient style of fortification: these walls were built by Venceslaus king of Bohemia during the short period in which he reigned over Poland.

The university of Crackow was formerly, and not unjustly, called the mother of Polish literature, as it principally supplied the other seminaries with professors and men of learning; but its lustre has been greatly obscured by the removal of the royal residence to Warsaw, and still more by the late intestine convulsions. In this city the art of printing was first introduced into Poland by Haller; and one of the earliest books was the Constitutions and Statutes compiled by Casimir the Great, and afterwards augmented by his successors. The characters are Gothic, the same which were universally used at the invention of printing: the great initial letters are wanting, which shows that they were probably painted and afterwards worn away. The year in which this compilation was printed is not positively known; but its publication was certainly anterior to 1496, as it does not contain the statutes passed by John Albert in that year. The most flourishing period of the university was under Sigismund Augustus in the 16th century, when several of the German reformers fled from the persecutions of the emperor Charles V. and found an asylum in this city. They gave to the world several versions of the sacred writings

Crackow, tings, and other theological publications, which diffused the reformed religion over great part of Poland. The protection which Sigismund Augustus afforded to men of learning of all denominations, and the universal toleration which he extended to every sect of Christians, created a suspicion that he was secretly inclined to the new church; and it was even reported that he intended to renounce the catholic faith, and publicly profess the reformed religion.

Towards the southern part of the town, near the Vistula, rises a small eminence or rock, upon the top of which is built the palace, surrounded with brick walls and old towers, which form a kind of citadel to the town. This palace owes its origin to Ladislaus Jaghelon; but little of the ancient structure now appears, as the greatest part was demolished by Charles XII. in 1701, when he entered this town in triumph after the battle of Clissow. It has been since repaired: the remains of the old palace consist of a few apartments, which are left in their ancient state as they existed in the last century. This palace was formerly the residence of the kings of Poland who, from the time of Ladislaus Loketec, have been crowned at Crackow. The Polish and German historians differ concerning the time when the title of king was first claimed by the sovereigns of this country; but the most probable account is, according to Mr Coxe, that in 1295 Premislaus assumed the regal title, and was inaugurated at Gnesna by the archbishop of that diocese. He was succeeded by Ladislaus Loketec, who offending the Poles by his capricious and tyrannical conduct, was deposed before he was crowned; and Venceslaus king of Bohemia, who had married Richsa daughter of Premislaus, being elected in his stead, was in 1300 consecrated at Gnesna. Ladislaus after flying from his country and undergoing a series of calamitous adventures, was at length brought to a sense of his misconduct. Having regained the affection of his subjects, he was restored, in the lifetime of Venceslaus, to part of his dominions; and he recovered them all upon the demise of that monarch in the year 1305: he governed, however, for some years without the title of king; but at length in 1320 was crowned at Crackow, to which place he transferred the ceremony of the coronation; and afterwards enacted, that for the future his successors should be inaugurated in the cathedral of this city.

Since that period all the sovereigns have been consecrated at Crackow, excepting the present king. Previous to his election a decree was issued by the diet of convocation, that the coronation should be solemnized for this turn at Warsaw, without prejudice in future the ancient right of Crackow; a proviso calculated to satisfy the populace, but which will not probably prevent any future sovereign from being crowned at Warsaw, now become the capital of Poland and the residence of its kings. The diadem and other regalia used at the coronation are still kept in the palace of Crackow, under so many keys, and with such care, that it was impossible to obtain a sight of them.

Adjoining to the palace stands the cathedral, also within the walls of the citadel. Here all the sovereigns, from the time of Ladislaus Loketec, have been interred, a few only accepted, viz. Louis and Ladislaus II. who were kings of Hungary as well as of Poland, and whose bodies were deposited in Hungary;

Alexander, who died and was buried at Vilna; Henry of Valois, interred in France; and the late monarch Augustus III. The sepulchres of the kings of Poland are not distinguished by any peculiar magnificence: their figures are carved in marble of no extraordinary workmanship, and some are without inscriptions.

The bishop of Crackow is the first in the kingdom, duke of Saveria, and very often a cardinal. His revenues are larger than those of his metropolitan the archbishop of Gnesna, and are computed to amount to 40,000 dollars *per annum*.

CRADLE, a well known machine in which infants are rocked to sleep.

It denotes also that part of the stock of a cross-bow where the bullet is put.

CRADLE, in surgery, a case in which a broken leg is laid after being set.

CRADLE, in engraving, is the name of an instrument used in scraping mezzotintos, and preparing the plate. It is formed of steel, resembling a chisel with one sloping side, upon which are cut hollow lines very near each other, and at equal distances. The acting part of this tool is made circular, and the corners are rounded. After being properly tempered, it must be sharpened on the whetstone. There are various sizes of this instrument.

CRADLE, among shipwrights, a frame placed under the bottom of a ship, in order to conduct her smoothly and steadily into the water when she is going to be launched; at which time it supports her weight while she slides down the descent or sloping passage called *the ways*, which are for this purpose daubed with soap and tallow. See Plate CL.

CRAFT, a general name for all sorts of vessels employed to load or discharge merchant ships, or to carry alongside or return the stores of men of war. Such are lighters, hoys, barges, prames, &c. See those articles.

CRAKE, or CORN-CRAKE. See RALLUS.

CRAIL, or CAREIL, a parliament town of Scotland, situated on the sea coast of the county of Fife, about seven miles south-east of St Andrew's. W. Long. 2. 20. and N. Lat. 56. 17.

CRAMBLE, SEA-CABBAGE, SEA-BEACH KALE, or SEA-COLEWORT, in botany: A genus of the siliquosa order, belonging to the tetradynamia class of plants; and in the natural method ranking under the 39th order, *Siliquosa*. The four longer filaments are forked at top, with an anthera only on one point of each; the fruit a dry, globose, and deciduous berry. There are three species, all of them herbaceous esculents with perennial roots, producing annually large leaves resembling those of cabbage spreading on the ground, with strong flower-stalks and yellowish flowers. Only one of the species is a native of Britain. It grows wild on the shores of many of the maritime counties of England, but is cultivated in many gardens as a choice esculent; and the young robust shoots of its leaves and flower-stalks, as they issue forth from the earth after the manner of asparagus shoots, are then in the greatest perfection for use. At this period they appear white as if blanched, and when boiled eat exceeding sweet and tender. Its principal season for use is in April and May. This plant may also be employed in the pleasure-ground as a flowering perennial, for the stalks.

Cradle
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Crambe

Crameria
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Cranium.
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stalks divide into fine branchy heads of flowers. It is propagated by seeds sown in any common light earth in autumn or spring, where the plants are to remain, which, when two years old, will produce shoots fit for use, will multiply exceedingly by the roots, and continue for many years.

CRAMERIA, in botany, a genus of the monogynia, order, belonging to the tetrandria class of plants. There is no calyx; the corolla has four petals; the superior nectary is trifid, the inferior biphyllous; the fruit is a dry, monospermous, and echinated berry.

CRAMOND, OVER and NETHER, two villages about four miles west of Edinburgh; of which only the last deserves notice, as having been once a famous naval station of the Romans. It is situated at the influx of the river Almon into the Forth. Three Roman roads meet at this place, which was called by them *Alaterva* and whither they brought their grain for the support of their troops. The village contains about 300 inhabitants. Here are the remains of a bath and sudatory; and many altars, medals, &c. have been dug up.

CRAMP, a kind of numbness or convulsion, occasioned by a thick viscid vapour entering the membranes of the muscles, which contracts or extends the neck, arms, legs, &c. with a violent but transitory pain; being usually driven off with friction alone. The word comes from the German *krampfe*, which signifies the same.

A glass of tar-water, to be drank night and morning, has been recommended; and a rod of brimstone, when held in the hand, has given present relief.

CRAMP Fish, or *Torpedo*. See RAJA.

CRAMP-Iron, or *Cramps*, a piece of iron bent at each end, which serves to fasten together pieces of wood, stones, or other things.

CRAMPONEE, in heraldry, an epithet given to a cross which has at each end a cramp or square piece coming from it; that from the arm in chief towards the sinister angle, that from the arm on that side downwards, that from the arm in base towards the dexter side, and that from the dexter arm upwards.

CRANAGE, the liberty of using a crane at a wharf, and also the money paid for drawing up wares out of a ship, &c. with a crane.

CRANE, in ornithology. See ARDEA.

CRANE, in mechanics, a machine used in building for raising large stones and other weights. See MECHANICS.

CRANE's Bill, in botany. See GERANIUM.

CRANES-Fly, in zoology, a species of TIPULA.

CRANGANOR, a Dutch factory on the Malabar coast in the East Indies, seated in E. Long. 75. 5. N. Lat. 10. 0. See COCHIN.

CRANIOLARIA, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personate*. The calyx of the flower is double, the under one tetraphyllous, the upper one a monophyllous spathe; the tube of the corolla very long; the capsule almost the same with that of the *martynia*; which see. There are two species, both natives of hot climates, and neither of them possessed of any remarkable property.

CRANIUM, in anatomy, an assemblage of several bones which cover and enclose the brain and cerebral

lum, popularly called the *skull*. See ANATOMY, n^o 11. The word comes from the Greek *κρανιον*, of *κρανιον*, *galea*, "helmet;" because it serves to defend the brain like a head-piece. Pezron, again derives *κρανιον* from the Celtic *cren*, because of its roundness.

CRANK, a contrivance in machines, in manner of an Elbow, only of a square form, projecting out from an axis or spindle; and serving, by its rotation, to raise and fall the pistons of engines for raising water or the like.

CRANK, in sea language. A ship is said to be *crank-fided*, when, for want of a sufficient quantity of ballast or cargo, she cannot bear her sails, or can bear but small sail, for fear of oversetting.—She is said to be *crank by the ground*, when her floor is so narrow that she cannot be brought on ground without danger.

CRANK is also an iron brace which supports the lanterns on the poop-quarters, &c.

CRANMER (Thomas), a celebrated archbishop, reformer, and martyr, was the son of Thomas Cranmer, Esq; of Aslahton in Nottinghamshire, where our author was born in 1489. At the age of 14, he was admitted a student of Jesus' College, Cambridge, of which he afterwards became fellow; but marrying the relation of an inn-keeper's wife, he lost his fellowship and quitted the college. On the death of his wife he was readmitted fellow of Jesus' College. In 1523 he took the degree of doctor of divinity, and was made theological lecturer and examiner. The plague being at Cambridge, he retired to the house of a relation at Waltham Abbey, where, meeting with Fox the King's almoner, and Gardiner the secretary, he gave his opinion concerning King Henry's marriage with Catharine much to the satisfaction of his majesty. This opinion was, that instead of disputing about the validity of the King's marriage with Catharine, they should reduce the matter to this simple question, "Whether a man may marry his brother's wife or no?" When the King was told of it he said, "This fellow has got the right sow by the ear." He then sent for him to court, made him one of his chaplains, and ordered him to write in vindication of the divorce in agitation. This book having quieted the tender conscience of the King, he was desirous that all Europe should be convinced of the illegality of his marriage with Queen Catharine; and for that purpose sent Cranmer to France, Italy, and Germany, to dispute the matter with the divines of those countries. At Nuremberg Cranmer married a second wife. Being returned to England, in March 1533 he was consecrated archbishop of Canterbury; in May following he pronounced the sentence of divorce between the King and Queen; and soon after married the amorous monarch to Ann Boleyn. Being now at the head of the church, he exerted himself in the business of the Reformation. The Bible was translated into English, and monasteries dissolved principally by his means.

In 1536 the royal conscience again required the assistance of our archbishop: in this year he divorced the King from Ann Boleyn. In 1537 he visited his diocese, and endeavoured to abolish the superstitious observation of holidays. In 1539 he and some of the bishops fell under the King's displeasure, because they could not be brought to give their consent in parliament that the monasteries should be suppressed for the King's sole use,

Crank.
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Cranmer.
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Cranmer.

use. He also strenuously opposed the act for the six articles in the house of lords, speaking three days against it; and upon the passing of that statute sent away his wife into Germany. In 1540 he was one of the commissioners for inspecting into matters of religion, and explaining some of its chief doctrines. The result of their commission was the book entitled *A necessary Erudition of any Christian Man*. After Lord Cromwell's death (in whose behalf he had written to the King), he retired and lived in great privacy, meddling not at all with state affairs. In 1541 he gave orders, pursuant to the King's directions, for taking away superstitious shrines; and, exchanging Bishopshorn for Becketshorn, united the latter to his diocese. In 1542 he procured the "Act for the advancement of true religion and the abolishment of the contrary," which moderated the rigour of the six articles. But the year following, some enemies preferring accusations against him, he had like to have been ruined, had not the King interposed in his behalf. His majesty continued afterwards to protect him from his enemies; and at his death appointed him one of the executors of his will, and one of the regents of the kingdom. In 1556 he crowned young Edward, during whose short reign he promoted the reformation to the utmost of his power; and was particularly instrumental in composing, correcting, and establishing the liturgy by act of parliament. He had also a share in compiling the thirty-nine articles of religion.

In 1553 he opposed the new settlement of the crown upon Lady Jane Gray, and would no way be concerned in that affair (though at last, through many importunities, he was prevailed upon to set his hand to it); neither would he join in any of Dudley's ambitious projects. Upon Queen Mary's accession to the throne, he was committed to the Tower; partly for setting his hand to the instrument of Lady Jane's succession, and partly for the public offer he had made a little before of justifying openly the religious proceedings of the late king. Some of his friends, foreseeing the storm that was likely to fall upon him, advised him to fly, but he absolutely refused. In the ensuing parliament, on November the 3d, he was attainted, and at Guildhall found guilty of high treason; whereupon the fruits of his archbishopric were sequestered. In April 1554, he and Ridley and Latimer were removed to Oxford, in order for a public disputation with the Papists; which was accordingly held there towards the middle of the month, with great noise, triumph, and impudent confidence on the Papists' side, and with as much gravity, learning, modesty, and convincing sufficiency on the side of the Protestant bishops. The 20th of April, two days after the end of these disputations, Cranmer and the two others were brought before the commissioners, and asked, Whether they would subscribe (to Popery)? which they unanimously refusing, were condemned as heretics. From this sentence the Archbishop appealed to the just judgment of the Almighty; and wrote to the council, giving them an account of the disputation, and desiring the Queen's pardon for his treason, which it seems was not yet remitted. By the convocation which met this year, his Defence of the true and catholic Doctrine of the Sacrament of the Body and Blood of our Saviour Christ was ordered to be burnt. Some of his friends petitioned the Queen in his behalf;

Cranmer.

putting her in mind how he had once preserved her in her father's time by his earnest intercessions with him for her, so that she had reason to believe he loved her, and would speak the truth to her more than all the rest of the clergy. All endeavours in his behalf however, were ineffectual; and the Archbishop being degraded and most ignominiously treated, was at last flattered and terrified into an insincere recantation and renunciation of the Protestant faith. But this triumph was not sufficient to gratify the pious vengeance of the Romish Mary. On the 24th of Feb. 1556, a writ was signed for the burning of Cranmer; and on the 24th March, which was the fatal day, he was brought to St Mary's church, Cambridge, and placed on a kind of stage over against the pulpit, where Dr Cole provost of Eton was appointed to preach a sermon on the occasion. While Cole was haranguing, the unfortunate Cranmer expressed great inward confusion; often lifting up his hands and eyes to heaven, and frequently pouring out floods of tears. At the end of the sermon, when Cole desired him to make an open profession of his faith, as he had promised him he would, he first prayed in the most fervent manner; then made an exhortation to the people present, not to set their minds upon the world, to obey the King and Queen, to love each other, and to be charitable. After this he made a confession of his faith, beginning with the creed, and concluding with these words: "And I believe every word and sentence taught by our Saviour Jesus Christ, his Apostles, and prophets, in the Old and New Testament.—And now (added he) I come to the great thing that so much troubleth my conscience more than any thing I ever did or said in my whole life; and that is the setting abroad a writing contrary to the truth, which I here now renounce as things written with my hand contrary to the truth which I thought in my heart; and written for fear of death, and to save my life if it might be: that is, all such bills and papers which I have written or signed with my hand since my degradation, wherein I have written many things untrue. And forasmuch as my hand offended, writing contrary to my heart, my hand shall first be punished; for, may I come to the fire, it shall be first burned. As for the pope, I refuse him as Christ's enemy and antichrist, with all his false doctrine. And as for the sacrament, I believe as I have taught in my book against the Bishop of Winchester." Thunderstruck as it were with this unexpected declaration, the enraged Popish crowd admonished him not to dissemble. "Ah?" (replied he with tears), "since I lived hitherto, I have been a hater of falsehood and a lover of simplicity, and never before this time have I dissembled." Whereupon they pulled him off the stage with the utmost fury, and hurried him to the place of his martyrdom over against Baliol College; where he put off his cloaths in haste, and standing in his shirt, and without shoes, was fastened with a chain to the stake. Some pressing him to agree to his former recantation, he answered, showing his hand, "This is the hand that wrote it, and therefore it shall first suffer punishment." Fire being applied to him, he stretched out his right hand into the flame, and held it there unmoved (except that once with it he wiped his face) till it was consumed; crying with a loud voice, "This hand hath offended;" and often repeating, "This unwor-

thy

Cranmer. thy right hand." At last the fire getting up, he soon expired, never stirring or crying out all the while; only keeping his eyes fixed to heaven, and repeating more than once, "Lord Jesus receive my spirit." Such was the end of the renowned Thomas Cranmer, in the 67th year of his age.

It was noticed above, that after the passing of the act for the six articles, Archbishop Cranmer sent his wife into Germany. But she afterwards returned again to England; and Mr. Strype informs us, that "in the time of King Edward, when the marriage of the clergy was allowed, he brought her forth, and lived openly with her." Mr. Gilpin says, "he left behind him a widow and children; but as he always kept his family in obscurity for prudential reasons, we know little about them. They had been kindly provided for by Henry VIII.; who, without any solicitation from the Primate himself, gave him a considerable grant from the Abbey of Walbeck in Nottinghamshire, which his family enjoyed after his decease. King Edward made some addition to his private fortune; and his heirs were restored in blood by an act of parliament in the reign of Elizabeth."

Archbishop Cranmer wrote a great number of books: many of them he published himself; and many of them still remain in MSS. viz. two folio volumes in the king's library, several letters in the Cotton collection, &c.

Mr Gilpin remarks, That "the character of the Archbishop hath been equally the subject of exaggerated praise and of undeserved censure. The most indefensible parts of the Archbishop's character are the readiness with which he sometimes concurred in the unjustifiable proceedings of Henry VIII. and the instances wherein he shewed himself to be actuated by intolerant principles.

"He first recommended himself to Henry by the zeal which he displayed in promoting the King's divorce from Queen Catharine. As to this, it may be allowed, that Dr Cranmer might think the marriage wrong: but though it possibly might be a point of conscience with the King, it could however be none with him; and there was manifestly a difference between advising not to do a thing, and advising to undo it when already done, at least in a matter of so disputable a nature. On the other hand, to repudiate a woman with whom the King had cohabited near 20 years as his wife, and to illegitimate a daughter, bred up in the highest expectations, and now marriageable, were acts of such cruelty, that it seems to indicate a want of feeling to be in any degree accessory to them. To this may be added, that the notoriety of the King's passion for Ann Boleyn, which all men believed to be, if not the first mover, at least the principal spring of his pretended scruples, threw a very indelicate imputation on all who had any concern in the affair. No serious churchman, one would imagine, could be found of the idea of administering to the King's passions. It is with concern, therefore, that we see a man of Dr. Cranmer's integrity and simplicity of manners acting so much out of character as to compound an affair of this kind, if not with his conscience, at least with all delicacy of sentiment; and to parade through Europe, in the quality of an ambassador, defending every where the King's *pious intentions*. But the cause (continues

Mr Gilpin) animated him. With the illegality of the King's marriage, he endeavoured virtually to establish the insufficiency of the pope's dispensation; and the latter was an argument so near his heart, that it seems to have added merit to the former. We cannot indeed account for his embarking so zealously in this business without supposing his principal motive was to free his country from the tyranny of Rome, to which this step very evidently led. So desirable an end would in some degree, he might imagine, sanctify the means."

Of two of the instances of persecution in which Archbishop Cranmer was concerned, Mr Gilpin gives the following account. "Joan Bocher and George Paris were accused, though at different times; one for denying the humanity of Christ, the other for denying his divinity. They were both tried and condemned to the stake; and the Archbishop not only consented to these acts of blood, but even persuaded the aversion of the young King into a compliance. 'Your majesty must distinguish (said he, informing his royal pupil's conscience) between common opinions and such as are the essential articles of faith. These latter we must on no account suffer to be opposed.' Mr. Gilpin justly observes, that "nothing even plausible can be suggested in defence of the Archbishop on this occasion, except only that the spirit of Popery was not yet wholly repressed." These instances of injustice and barbarity were indeed totally indefensible, and a great disgrace to Cranmer and to all who were concerned in them. It does not appear that he endeavoured to promote the death of Lambert; but, as Mr. Gilpin observes, it were to be wished he had rid his hands of the disputation likewise. The public disputation, in which Cranmer bore some part, proved the means of bringing Lambert to the stake.

One of the most honourable transactions of Archbishop Cranmer's life, was the firm stand that he made against the act of the six articles. This act was so strongly supported by the King, that even the Protestants in parliament made little opposition to it. But Cranmer opposed it with great zeal and steadiness. "The good Archbishop (says Mr. Gilpin) never appeared in a more truly Christian light than on this occasion. In the midst of so general a defection (for there were numbers in the house who had hitherto shown great forwardness in reformation) he alone made a stand. Three days he maintained his ground, and baffled the arguments of all opposers. But argument was not their weapon, and the Archbishop saw himself obliged to sink under superior power. Henry ordered him to leave the house. The Primate refused: 'It was God's business (he said), and not man's. And when he could do no more, he boldly entered his protest. Such an instance of fortitude is sufficient to wipe off many of those courtly stains which have fastened on his memory.'

His behaviour in the cause of the Duke of Norfolk was also intitled to great commendation. "The last act of this reign (says Mr Gilpin) was an act of blood, and gave the Archbishop a noble opportunity of showing how well he had learned that great Christian lesson of forgiving an enemy. Almost without the shadow of justice, Henry had given directions to have the Duke of Norfolk attainted by an act of parliament. The King's mandate stood in lieu of guilt, and the bill passed

Cranmer. passed the house with great ease. No man, except the Bishop of Winchester, had been so great an enemy to the Archbishop as the Duke of Norfolk. He had always thwarted the Primate's measures, and oftener than once had practised against his life. How many would have seen with secret pleasure the workings of Providence against so rancorous an enemy; satisfied in having themselves no hand in his unjust fate! But the Archbishop saw the affair in another light: he saw it with horror; and although the King had in a particular manner interested himself in this business, the Primate opposed the bill with all his might; and when his opposition was vain, he left the house with indignation, and retired to Croydon."

He was indeed remarkable for the placability of his temper, and for showing kindness to those by whom he had been greatly injured. Hence it is mentioned in Shakespeare's Henry VIII. as a common saying concerning him:

— "Do my Lord of Canterbury
But one shrewd turn, and he's your friend for ever."

Archbishop Cranmer was a great friend and patron of learned foreigners, who had been persecuted for their attachment to the principles of the Reformation. Mr Gilpin says, "the suffering professors of Protestantism, who were scattered in great numbers about the various countries of Europe, were always sure of an asylum with him. His palace at Lambeth might be called a seminary of learned men; the greater part of whom persecution had driven from home. Here, among other celebrated reformers, Martyr, Bucer, Ales, Phage, found sanctuary. Martyr, Bucer, and Phage, were liberally pensioned by the Archbishop till he could otherwise provide for them. It was his wish to fix them in the two universities, where he hoped their great knowledge and spirit of inquiry would forward his designs of restoring learning; and he at length obtained professorships for them all. Bucer and Phage were settled at Cambridge; where they only showed what might have been expected from them, both dying within a few months after their arrival. But at Oxford Martyr acted a very conspicuous part, and contributed to introduce among the students there a very liberal mode of thinking.

Of the learning of Archbishop Cranmer, Mr Gilpin remarks, that "it was chiefly confined to his profession. He had applied himself in Cambridge to the study of the Greek and Hebrew languages; which, though esteemed at that time as the mark of heresy, appeared to him the only sources of attaining a critical knowledge of the Scriptures. He had so accurately studied canon law, that he was esteemed the best canonist in England; and his reading in theology was so extensive, and his collections from the Fathers so very voluminous, that there were few points in which he was not accurately informed, and in which he could not give the opinions of the several ages of the church from the times of the Apostles. He was a sensible writer, rather nervous than elegant. His writings were entirely confined to the great controversy which then subsisted, and contain the whole sum of the theological learning of those times. His library was filled with a very noble collection of books, and was open to all men of letters.

Mr. Gilpin, after remarking that Archbishop Cran-

mer preached often wherever he visited, says, "In his sermons to the people he was very plain and instructive; insisting chiefly on the essentials of Christianity. The subjects of his sermons, for the most part, were from whence salvation is to be fetched, and on whom the confidence of man ought to lean. They insisted much on doctrines of faith and works; and taught what the fruits of faith were, and what place was to be given to works; they instructed men in the duties they owed their neighbour, and that every one was our neighbour, to whom we might any way do good; they declared what men ought to think of themselves after they had done all; and, lastly, what promises Christ hath made, and who they are to whom he will make them good. Thus he brought in the true preaching of the Gospel, altogether different from the ordinary way of preaching in those days; which was to treat concerning saints, to tell legendary tales of them, and to report miracles wrought for the confirmation of transubstantiation and other Popish corruptions. And such a heat of conviction accompanied his sermons, that the people departed from them with minds possessed of a great hatred of vice, and burning with a desire of virtue."

He was a great economist of his time. Mr. Gilpin says, "he rose commonly at five o'clock, and continued in his study till nine. These early hours, he would say, were the only hours he could call his own. After breakfast he generally spent the remainder of the morning either in public or private business. His chapel-hour was eleven, and his dinner-hour twelve. After dinner he spent an hour either in conversation with his friends, in playing at chess, or in, what he liked better, overlooking a chess-board. He then retired again to his study till his chapel-bell rang at five. After prayers, he generally walked till six, which was in those times the hour of supper. His evening meal was sparing. Often he ate nothing; and when that was the case, it was his usual custom, as he sat down to table, to draw on a pair of gloves; which was as much as to say, that his hands had nothing to do. After supper, he spent an hour in walking and another in his study, retiring to his bedchamber about nine. This was his usual mode of living when he was most vacant, but very often his afternoons as well as his mornings were engaged in business. He generally, however, contrived, if possible, even in the busiest day, to devote some proportion of his time to his books besides the morning. And Mr Fox tells us, he always accustomed himself to read and write in a standing posture; esteeming constant sitting very pernicious to a studious man."

Mr Gilpin also observes, "that he was a very amiable master in his family, and admirably preserved the difficult medium between indulgence and restraint. He had, according to the custom of the times, a very numerous retinue, among whom the most exact order was observed. Every week the steward of his household held a kind of court in the great hall of his palace; in which all family affairs were settled, servants wages were paid, complaints were heard, and faults examined. Delinquents were publicly rebuked, and after the third admonition discharged. His hospitality and charities were great and noble; equal to his station, greater often than his abilities. A plentiful

Cranney
||
Crape.

ful table was among the virtues of those days. His was always bountifully covered. In an upper room was spread his own, where he seldom wanted company of the first distinction. Here a great many learned foreigners were daily entertained, and partook of his bounty. In his great hall a long table was plentifully covered every day for guests and strangers of a lower rank: at the upper end of which were three smaller tables, designed for his own officers and inferior gentlemen. Among other instances of the Archbishop's charity, we have one recorded which was truly noble. After the destruction of monasteries, and before hospitals were erected, the nation saw no species of greater misery than that of wounded and disbanded soldiers. For the use of such miserable objects were landed on the southern coasts of the island, the Archbishop fitted up his manor-house of Beckesburn in Kent. He formed it indeed into a complete hospital; appointing a physician, a surgeon, nurses, and every thing proper, as well for food as physic. Nor did his charity stop here. Each man, on his recovery, was furnished with money to carry him home, in proportion to the distance of his abode."

To conclude with the character given by Mr Hume; "Archbishop Cranmer was undoubtedly a man of merit; possessed of learning and capacity; and adorned with candour, sincerity, and beneficence, and all those virtues which were fitted to render him useful and amiable in society. His moral qualities procured him universal respect; and the courage of his martyrdom, though he fell short of the rigid inflexibility observed in many, made him the hero of the Protestant party."

CRANNY, in glass-making, an iron instrument wherewith the necks of glasses are formed.

CRANTARA, among the ancient Britons, was a sort of military signal used for collecting the distant and scattered warriors to the standard of their chief. A prince having immediate occasion for the assistance of his followers to repel some sudden invasion or engage in some expedition, besides striking the shield and sounding the horn to give warning to those who were within hearing, he sent the crantara, or a stick burnt at the end and dipped in the blood of a goat, by a swift messenger, to the nearest hamlet, where he delivered it without saying one word but the name of the place of rendezvous. This crantara, which was well understood to denounce destruction by fire and sword to all who did not obey this summons, was carried with great rapidity from village to village; and the prince in a little time found himself surrounded by all his warriors ready to obey his commands.

CRANTOR, a Greek philosopher and poet, was born at Solos in Cilicia. He left his native country where he was admired; went to Athens, and there studied with Polemon under Xenocrates. He was considered as one of the chief supporters of the Platonic sect; and was the first who wrote commentaries upon Plato's works. He flourished 270 years before Christ.

CRAPE, a light transparent stuff, in manner of gauze: made of raw silk gummed and twisted on the mill; woven without crossing, and much used in mourning.

Crapes are either craped, i. e. crisped, or smooth; the first double, expressing a closer mourning; the

latter single, used for that less deep. Note, White is reserved for young people, or those devoted to virginity. The silk destined for the first is more twisted than that for the second; it being the greater or less degree of twisting, especially of the warp, which produces the crisping given it when taken out of the loom, steeped in clear water, and rubbed with a piece of wax for the purpose.

Crapes are all dyed raw. The invention of this stuff came originally from Bologna: but the chief manufacture of it is said to be at Lyons.

History tells us, that St. Bathilda, Queen of France, made fine crape (*crepa*) of gold and silver, to lay over the body of St. Eloy. The Bollandists own they cannot find what this *crepa* was. Biuet says, it was a frame to cover the body of the saint: but others, with reason, take it to be a transparent stuff, through which the body might be seen; and that this was the *crepa* whence our word crape was formed.

CRAPULA, among physicians: a term for SURFEIT.

CRASHAW (Richard), who was in his lifetime honoured with the friendship of Cowley, and since his death by the praise of Mr. Pope, who condescended both to read his poems and to borrow from them; was the son of William Crashaw, an eminent divine, and educated at the Charter-house near London. He was then sent to Pembroke hall in Cambridge, and was afterwards of Peter-house, where he was fellow; in both which colleges he was distinguished for his Latin and English poetry. Afterwards he was ejected from his fellowship, together with many others, for denying the covenant in the time of the rebellion; and he changed his religion, being by catholic artifices perverted to the church of Rome; not converted, but rather, as Pope says, *outwitted*. He went to Paris, in hopes of recommending himself to some preferment there; but being a mere scholar, was incapable of executing the new plan he had formed. There he fell into great distress, which Cowley the poet hearing of in 1646, very kindly sought him out, gave him all the assistance he could, and at last got him recommended to Henrietta Maria queen of England, then residing at Paris. Obtaining from her letters of recommendation, he travelled into Italy; and by virtue of those letters became secretary to a cardinal at Rome, and at last one of the canons or chaplains of the rich church of our lady at Loretto, some miles distance from thence, where he died and was buried about 1650. Before he left England he wrote certain poems, entitled, *Steps to the Temple*; "because (says Wood) he led his life in the temple of God, in St. Mary's church near to his college. There, as we learn from the preface to these poems, he lodged under Tertullian's roof of angels. There he made his nest more gladly than David's swallow near the house of God; where, like a primitive saint, he offered more prayers in the night than others usually offer in the day. There he penned the said poems called *Steps to the Temple for happy Souls to climb to Heaven by*. To the said Steps are joined other poems called *The Delight of the Muses*, wherein are several Latin poems: which though of a mere human mixture, yet they are sweet as they are innocent. He hath also written *Carmen Deo nostro*, being hymns and other sacred poems, addressed to the counts of Denbigh. He was excellent in five languages besides

Crapul
Crashaw.

Crisis
||
Crassus.

besides his mother tongue, namely, Hebrew, Greek, Latin, Italian, and Spanish.

CRASIS (from *κρῆσις*, to mix), the temper of the blood peculiar to every constitution.

CRASIS, in grammar, is a figure whereby two different letters are either contracted into one long letter or a diphthong. Such, e. g. is *ορις* for *οριας*; *αληθη* for *αληθεια*, &c. *τυχης* for *τυχιος*, &c. where *i* and *a* are contracted into *i*; *e* and *a* into *e*; and *i* and *o* into *u*.

CRASSAMENTUM, in physic, the thick red or fibrous part of the blood, otherwise called *cruur*, in contradistinction to the serum or aqueous part.

CRASSULA, LESSER ORPINE, OR LIVE-EVER: A genus of the pentagynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is pentaphyllous; the petals five, with five nectariferous scales at the base of the germen, and five capsules. There are 17 species, all of them natives of warm climates. Several of them are cultivated in this country, but require the assistance of artificial heat for their preservation. They rise from one foot to six or eight in height, and are ornamented with oblong, thick, succulent leaves, and funnel-shaped pentapetalous flowers of a scarlet, white, or greenish colour. They are propagated by off-sets or cuttings; and must be potted in light sandy compost, retained in a sunny part of the green-house all winter, and very sparingly watered. In summer they may be placed in the full air in a sheltered place, and in dry weather watered twice a week.

CRASSUS (M. Licinius), a celebrated Roman, surnamed *Rich* on account of his opulence. At first he was very circumscribed in his circumstances, but by educating slaves and selling them at a high price he soon enriched himself. The cruelties of Cinna obliged him to leave Rome, and he retired to Spain, where he remained concealed for 8 months. After Cinna's death he passed into Africa, and thence to Italy, where he served Sylla and ingratiated himself in his favour. When the Gladiators with Spartacus at their head had spread an universal alarm in Italy and defeated some of the Roman generals, Crassus was sent against them. A battle was fought, in which Crassus slaughtered 12,000 of the slaves, and by this decisive blow soon put an end to the war, and was honoured with an *ovatio* at his return. He was soon after made consul with Pompey in the year of Rome 682, and in this high office he displayed his opulence by entertaining the populace at 10,000 tables. He was afterwards Censor, and formed the first triumvirate with Pompey and Cæsar. As his love of riches was more predominant than that of glory, Crassus never imitated the ambitious conduct of his colleagues, but was satisfied with the province of Syria, which seemed to promise an inexhaustible source of wealth. With hopes of enlarging his possessions he set off from Rome, though the omens proved unfavourable, and every thing seemed to threaten his ruin. He crossed the Euphrates, and forgetful of the rich cities of Babylon and Seleucia, he hastened to make himself master of Parthia. He was betrayed in his march by the delay of Artabanes, king of Armenia, and the perfidy of Ariamnes. He was met in a large plain by Surena the general of the forces of Orodes king of Parthia, and a battle was

fought in which 20,000 Romans were killed and 10,000 taken prisoners. The darkness of the night favoured the escape of the rest; and Crassus, forced by the mutiny and turbulence of his soldiers, and the treachery of his guides, trusted himself to the general of the enemy on pretence of proposing terms of accommodation, and he was killed. His head was cut off and sent to Orodes, who poured melted gold down his throat, and insulted his misfortunes. Though he has been called avaricious, yet he shewed himself always ready of lending money to his friends without interest. He was fond of philosophy, and his knowledge of history was great and extensive.

CRATAEGUS, WILD-SERVICE TREE, HAWTHORN, &c. A genus of the digynia order, belonging to the icofandria class of plants; and in the natural method ranking under the 36th order, *Pomaceæ*. The calyx is quinquefid; the petals five; the berry inferior, dispersuous. There are ten species, all of the tree and shrub kind, hardy and deciduous. Those most valuable for economical and ornamental purposes in gardening are the following.

1. The oxycanthus, hawthorn, or white thorn, grows naturally all over Europe. In the state in which we are used to observe it, it is nothing better than a tall, uncouth irregular shrub; but trained up as a standard, it swells to a large timber size, with a tall stem and a full spreading head. The standard hawthorn, whether we view its flowers in the spring, its foliage in the summer, or its fruit in the autumn or winter, is one of the most ornamented plants, standing singly, that can be scattered over a park or lawn. Its uses will be explained under the article HEDGES.

In order to propagate a quantity of quick, one method is generally practised; namely, first burying the haws, and taking them up to sow the October following; though, says Hanbury, there is another way more preferable; namely, to prepare the beds, and sow the haws soon after they are gathered. Whoever pursues the former method, having gathered what quantity of haws will answer his purpose, should in some bye-corner of the kitchen-garden or nursery dig an hole or pit capacious enough to receive them; some of the earth which came out of the hole, after the haws are put in it, should be laid upon them; and being thus carefully covered down, they may remain there till October. Then, having ground well dug, and cleared of the roots of all troublesome weeds, and the mould being fit for working, the beds should be made for the haws. Four feet is a very good width of these beds, as they may be easily reached over to be wedded; and if the alleys between be each one foot and a half wide, they will be of a good size. The beds being marked out with a line, sufficient mould must be raked out to cover the haws an inch and an half deep. This being done, and the bottom of the beds being made level and even, the haws should be sown, and afterwards gently tapped down with the back of the spade; and then the fine mould, which had been raked out of the beds, must be thrown over them, covering them an inch and a half deep. In the spring the plants will come up, and in the summer following should be kept clear of weeds; though it does sometimes happen, that few of them will appear till the second spring after sowing. Sometimes the young

Crataegus.

Crataegus.

young plants are planted out from the seed-beds at one, two, or three years old; but the best plants are obtained by transplanting them into fresh mould the first or second year, letting them remain in the nursery two or three years longer. The practice of the London nurserymen is this: The strongest of the seed-bed plants having been drawn at two or three years old for sale, they clear the beds entirely by drawing the remaining weak underling plants, and transplanting them into fresh beds in this manner, which they call *bedding them*: The ground having been trenched, and the tips of the plants as well as the lower fibres of their roots having been taken off with a sharp knife, they strain a line along one side of the bed; and by chopping with a spade by the side of the line, leave a clift or drill of a depth proportioned to the length of the plants to be laid in; and drawing the loose mould somewhat towards them, leave the side of the drill next to the line with a smooth polished face. Against this face the plants are set up, leaning towards the line, about three inches asunder, leaving their heads about an inch above the mould, and placing their roots at such a depth as to bury their stems from two to three inches deeper than they stood in the seed-bed. The loose mould being returned and pressed gently to the roots with the foot, the line is removed, and another row planted in the same manner about a foot from the first.

The common hawthorn sports in the following varieties: The large scarlet hawthorn; the yellow hawthorn; the white hawthorn; the maple-leaved hawthorn; the double-blossomed hawthorn; the Glastonbury thorn. The large scarlet hawthorn is no more than a beautiful variety of the common haw. It is exceedingly large, oblong, perfectly smooth, and of a bright scarlet; and from the additional splendor it acquires by the berries, it is propagated to cause variety in plantations for observation and pleasure. Yellow haw is a most exquisite plant. The buds at their first coming out in the spring are of a fine yellow, and the fruit is of the colour of gold. The tree is a great bearer, and retains its fruit all winter, causing a delightful effect in plantations of any kind. It was originally brought from Virginia, is greatly admired, and no collection of hardy trees should be without it. White haw is but a paltry tree compared with the former. It hardly ever grows to the height of the common hawthorn, is an indifferent bearer, and the fruit is small and a very bad white. Maple-leaved hawthorn will grow to be near twenty feet high, and has very few thorns. The leaves are larger than the common hawthorn, resemble those of the maple, and are of a whitish green colour. The flowers are produced in large bunches in June, and are succeeded by remarkable fruit, of a shining red, which looks beautiful in the winter. Double blossomed hawthorn produces a full flower, and is one of the sweetest ornaments in the spring. Nature seems to have peculiarly designed this sort for the pleasure-garden; for though it be the common hawthorn only with the flowers doubled, yet it may be kept down to what size the owner pleases; so that it is not only suitable for wilderness-quarters, shrubberies, and the like, but is also useful for small gardens, where a tree or two only are admitted. These beautiful double flowers come out

in large bunches in May, and the tree is so good a bearer that it will often appear covered with them. Their colour at their first appearance is a delicate white: They afterwards die to a faint red colour, and are frequently succeeded by small imperfect fruit. Glastonbury thorn differs in no respect from the common hawthorn, only that it sometimes flowers in the winter. It is said to have originally been the staff of Joseph of Arimathea, that noble counsellor who buried Christ. He, according to the tradition of the abbey of Glastonbury, attended by eleven companions, came over into Britain, and founded, in honour of the Blessed Virgin, the first Christian church in this isle. As a proof of his mission, he is said to have stuck his staff into the ground, which immediately shot forth and bloomed. This tree is said to have blossomed on Christmas-day ever since, and is universally distinguished by the name of the *Glastonbury thorn*. Hanbury says, I have many plants that were originally propagated from this thorn: and they often flower in the winter, but there is no exact time of their flowering; for in fine seasons they will sometimes be in blow before Christmas, sometimes they afford their blossoms in February, and sometimes it so happens that they will be out on Christmas-day.

2. The azarolus, or azarole thorn, is a native of Italy and the south of France. It will grow to be fifteen or sixteen feet high. The leaves are large, nearly trifid, serrated and obtuse. The flowers are large, come out in May, and in the different varieties are succeeded by fruit of different size, shape, and relish. The principal varieties of this species are: The azarole with strong thorns; the azarole with no thorns; the jagged leaved azarole; the oriental medlar.

3. The *aria theophrasti*, called the *white-leaf-tree*, is a native of most of the cold countries of Europe. It will grow to be more than twenty feet high. This tree is engaging at all times of the year, and catches the attention even in the winter; for then we see it stand, though naked of leaves, with a fine strait stem, with smooth branches, spotted with white, at the end of which are the buds, swelled for the next year's shoot, giving the tree a bold and fine appearance. In the spring the leaves come out of course, and look delightfully, having their upper surface green and the lower white. Their figure is oval; they are unequally serrated, about three inches long, and half as wide. Several strong nerves run from the mid rib to the border, and they are placed alternately on the branches, which appear as if powdered with the finest meal. The flowers are produced at the end of the branches in May: they are white, grow in large bunches, having mealy footstalks; and are succeeded by red berries, which will be ripe in autumn.

4. The *terminalis*, wild service, or maple-leaved service, is a large growing tree, native of England, Germany, Switzerland, and Burgundy. It will arrive to near fifty feet, and is worth propagating for the sake of the timber, which is very white and hard. This tree grows naturally in several woods in England; and it is the fruit of this species that is tied in bunches and exposed for sale in the autumn: It is gathered in the woods, and by some persons is much liked. The leaves in some degree resemble those of the maple-tree in shape; their upper surface is a fine green, their un-

Crataegus. der hoary; and they grow alternately on the branches,  The flowers come out in May, exhibiting themselves in large clusters at the end of the branches: They are white, and are succeeded by the aforefaid eatable fruit, which, when ripe, is of a brown colour, and about the size of a large haw.

5. The coccinea, or Virginian azarole, is a native of Virginia and Canada. It will grow to be near twenty feet high. The stem is robust, and covered with a light-coloured bark. The branches are produced without order, are of a dark brown colour, and possessed of a few long sharp thorns. The leaves are spear-shaped, oval, smooth, and serrated; of a thickish consistence, and often remain on the tree the greatest part of the winter. Each separate flower is large; but as few of them grow together, the umbels they form are rather small. They come out in May, and are succeeded by large dark-red coloured fruit, which ripens late in the autumn. The varieties of this species are: The pear-leaved thorn; the plum-leaved thorn with very long strong spines and large fruit; the plum-leaved thorn with short spines and small fruit.

6. The crus galli, or cockspur thorn, is a native of Virginia and Canada, and grows to about twenty feet high. It rises with an upright stem, irregularly sending forth branches, which are smooth, and of a brownish colour, spotted thinly with small white spots. It is armed with thorns that resemble the spurs of cocks, which gained it the appellation of cockspur thorn. In winter the leaf-buds appear large, turgid, and have a bold and pleasant look among others of different appearances. In summer this tree is very delightful. The leaves are oval, angular, serrated, smooth, and bend backwards. They are about four inches long, and tree and a half broad; have five or six pair of strong nerves running from the mid rib to the border; and die to a brownish-red colour in the autumn. The flowers are produced in very large umbels, making a noble show in May; and are succeeded by large fruit of a bright red colour, which have a good effect in the winter. The principal varieties of this species are: The cockspur hawthorn with many thorns; the cockspur hawthorn with no thorns; the cockspur with eatable fruit. "The latter was sent me (says Hanbury) from America with that name, and I have raised some trees of the seed; but they have not yet produced any fruit, so that I cannot pretend to say how far it may be desirable; though I have been informed it is relished in America by some of the inhabitants there."

7. The tomentosa, gooseberry-leaved Virginia hawthorn, grows to about seven or eight feet high. The branches are slender, and closely set with sharp thorns. The leaves are cuneiform, oval, serrated, and hairy underneath. The flowers are small, and of a white colour: they are produced from the sides of the branches about the end of May; and are succeeded by yellow fruit, which ripens late in autumn. There is a variety of this called the *Carolina Hawthorn*, which has longer and whiter leaves, large flowers and fruit, and no thorns.

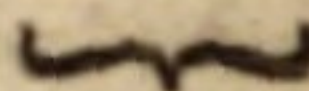
8. The viridis, or green-leaved Virginia hawthorn, has the stem and branches altogether destitute of thorns. The leaves are lanceolate, oval, nearly trilobate, serrated, smooth, and green on both sides. The flowers are white, moderately large, come out the end of May,

and are succeeded by a roundish fruit, which will be ripe late in the autumn. *Crataegus*

The respective species are all propagated by sowing of the seeds; and the varieties are continued by budding them upon stocks of the white thorn. This latter method is generally practised for all the sorts; though, when good seeds can be procured, the largest and most beautiful plants are raised that way. 1. In order to raise them from seeds, let these be sown soon after they are ripe, in beds of fresh, light, rich earth. Let alleys be left between the beds, for the convenience of weeding, and let the seeds be covered over with fine mould about an inch deep. The summer following the beds must be kept clean of weeds, and probably some few plants will appear: But this is not common in any of the sorts; for they generally lie till the second spring after sowing before they come up. At the time they make their appearance they must be watered if the weather proves dry; and this should be occasionally repeated all summer. They should also be constantly kept clean from weeds; and in the autumn the strongest may be drawn out, and set in the nursery-ground, a foot asunder, in rows that are two feet distant from each other; while the weakest may remain until another year. During the time they are in the nursery, the ground between the rows should be dug every winter, and the weeds constantly hoed down in the summer; and this is all the trouble they will require until they are planted out for good, which may be in two, three, or more years, at the pleasure of the owner, or according to the purposes for which they are wanted. 2 These trees are easily propagated by budding also; they will all readily take on one another; but the usual stocks are those of the common hawthorn. In order to have these the best for the purpose, the haws should be got from the largest trees, such as have the fewest thorns and largest leaves. After they are come up, and have stood one year in the seed bed, the strongest should be planted out in the nursery, a foot asunder and two feet distant in the rows; and the second summer after many of them will be fit for working. The end of July is the best time for this business; and cloudy weather, night and morning, are always preferable to the heat of the day. Having worked all the different sorts in these stocks, they may be let alone until the later end of September, when the bass matting should be taken off. In the winter the ground between the rows should be dug, and in the spring the stock should be headed about half a foot above the bud. The young shoots the stocks will always attempt to put out, should be as constantly rubbed off; for these would in proportion starve the bud and stop its progress. With this care several of the sorts have been known to shoot six feet by the autumn; and as they will be liable to be blown out of their sockets by the high winds which often happen in the summer, they should be slightly tied to the top of the stock that is left on for the purpose, and this will help to preserve them.

CRATCHES, in the manege, a swelling on the pastern, under the fetlock, and sometimes under the hoof; for which reason it is distinguished into the finew cratches, which affect the finew, and those upon the cronet, called *quitter-bones*.

CRATER, CUP, in astronomy, a constellation of

Crater.


Crater
||
Cratippus.

of the southern hemisphere; whose stars, in Ptolemy's Catalogue, are seven; in Tycho's, eight; in Hevelius', ten; in the Britannic Catalogue, thirty-one.

CRATER is also used to signify the mouth or opening of a volcano or burning mountain, from whence the fire is discharged. See VOLCANO.

CRATES, of Thebes, a famous philosopher, was the disciple of Diogenes the Cynic. It is said that he threw all his money into the sea, that he might the more freely apply himself to the study of philosophy. Others assert that he placed it into another person's hands, with orders to give it to his children if they should happen to be fools: For (said Crates), if they should be philosophers, they will have no need of it: in which case it was to be given to the people. He flourished about 328 years before Christ.

He ought not to be confounded with Crates, a famous academic philosopher, the disciple and friend of Polemon. This last Crates had Arcefilaus and other celebrated philosophers for his disciples; and flourished about 300 years before Christ.

CRATEVA, the GARLIC PEAR: A genus of the monogynia order, belonging to the dodecandria class of plants; and in the natural method ranking under the 25th order, *Putamineæ*. The corolla is tetrapetalous; the calyx quadrifid; the berry inferior dispermous. There are two species, both of them natives of several parts of India. They are both of the tree kind; and are chiefly distinguished by their fruit. The tapia, or garlic pear, has a smooth round fruit about the size of an orange, with a hard brown shell or cover, which incloses a mealy pulp, filled with kidney-shaped seeds. It hath a strong smell of garlic, and communicates the same to such animals as feed upon it. The tender buds from the young branches being bruised and applied to the naked skin, will blister as effectually as cantharides. It rises to the height of about 30 feet. The other grows to the size of a very large tree, with trifoliate leaves, sawed on the edges. The flowers have the smell of roses, and are succeeded by an oblong fruit of the size of an apple, covered with a very hard bony shell, and containing a soft fleshy pulp, having the taste of quinces. From the flowers of this plant is obtained by distillation a water highly odoriferous and cordial. The pulpy part of the fruit is prepared into various kinds of marmalades, which are exceedingly agreeable to the taste, and are much used by the grantees in those countries where the trees are native; they are also reckoned serviceable in dysenteries. Both species may be propagated in this country by seeds. These are to be sown upon a hot-bed in the spring; and when the plants come up, they are to be treated in the manner directed for the ANNONA.

CRATINUS, an ancient comic poet, of whom we should scarcely have known any thing, had not Quintilian, Horace, and Persius, mentioned him, Eupolis, and Aristophanes, as the great masters of what we call the ancient comedy. It is gathered that he died in the 87th Olympiad. Suidas tells us that he wrote 21 plays, and that he was splendid and bright in his characters.

CRATIPPUS, a celebrated peripatetic philosopher, was a native of Mitylene, where he taught philosophy; but at length went to Athens, where Brutus and the son of Cicero were his disciples. Pompey

went to see him after the battle of Pharsalia, and proposed to him his difficulties in relation to the belief of a Providence; when Cratippus comforted him, and by forcible arguments answered his objections. He wrote some pieces about divination: and is supposed to be the same with him whom Tertullian, in his book *De Anima*, has ranked among the writers upon dreams.

CRATO, a small town of Portugal, in the province of Alentejo, with a rich priory. It is the chief commandery which the knights of Malta have in Portugal. W. Long. 8. 12. N. Lat. 38. 50.

CRAVAN, a town of France, in Burgundy, remarkable for its good wine, and for a battle fought there between the English and French. It is seated near the confluence of the rivers Cure and Yonne. E. Long. 3. 30. N. Lat. 47. 42.

CRAVEN, or CRAVENT, a word of reproach, used in trials by battle. See BATTEL.

CRAX, in ornithology, the curassou, a genus of birds, belonging to the order of gallinæ. The base of the beak of each mandible is covered with wax; and the feathers of the head are curled. There are five species, viz. 1. The alecator, or Indian hen of Sloane, is about the size of a small turkey. It is black, with a white belly. A yellow wax covers about one half of each mandible; the tongue is entire; the temples are bare and black: the tail is roundish, and consists of 14 prime feathers; the legs are strong, and of a dusky brown colour. They are frequent at Guiana: and are called *poawise* by the natives from their cry, which is somewhat similar; are pretty numerous in the woods, and make no small part of the food of the planters, being supplied therewith by the Indian hunters; and their flesh is reckoned delicate, much like that of a turkey. They are easily brought up tame, and are frequently found in the Dutch settlements of Berbice, Essequibo, and Demerary. They are called at Brasil by the name of *curaffo*. It is found in the warm parts of America. 2. The rubra, or Peruvian hen, is red, with a bluish head: it is a native of Peru. These birds are natives of Mexico and Peru. They feed on fruits, and perch of nights on trees: the flesh is white; and esteemed very good food. They are frequently kept tame in our menageries in England, and readily mix with other poultry, feeding on bread and grain; but this climate is not near warm enough for their nature, they not being able to bear the dampness of the grass of our meadows, which renders them subject to have their toes rot off. They will often live in this state some time; and in one instance which Mr Latham saw, the whole of one foot was gone, and but part of one toe left on the other, before the creature died. 3. The mitu, or Brazilian pheasant, is black, with a dusky belly, and red wax: it is a native of Guinea and Brazil. 4. The globicera, has a yellow protuberance between the nostrils, and is of a bluish-black colour: it is likewise a native of Brazil. 5. The pauxi, or Mexican pheasant of Brissonius, is of a bluish colour, with blue wax, and the tip of the tail and belly white: it is a native of Mexico.

CRAY-FISH, or CRAW-Fish. See CANCER.

The flesh of cray-fish is cooling, moistening, and adapted to nourish such as labour under atrophies. There are various methods of preparing these animals; they may be either boiled or fried, and then taken out

Crato
||
Cray-fish.

Plate CLII.

Cray-fish,
Crayon.

of their shells, and made up in variety of dishes: but no parts of them are eatable except their claws and tails. Preparations and broths of cray-fish are celebrated not only for a palatable aliment, but also for answering some medicinal intentions, as being of a moistening quality, and sheathing up and correcting acrimony. The broth is prepared of four or five cray-fish, which having their heads cut off, and their intestines extracted, are to be bruised and boiled in the broth of flesh or poultry, until they become sufficiently red; after which the liquor is to be strained off and seasoned, as the case may require. This broth may be rendered still more medicinal by the addition of herbs, snails, or other substances; according to the intention of the physician. Their flesh is accounted best in the summer months.

The delicate flavour of these fish depends in a great measure on their food. When they have well-tasted food, their flesh preserves the relish of it: but when they feed on other things, they are often rendered of no value, by the flavour communicated to their flesh by them. There are great quantities of these fish in the river Obra, on the borders of Silesia; but the people find them scarce eatable, because of a bitter aromatic flavour, very disagreeable in food. It has been since observed, that the *calamus aromaticus* grows in vast abundance on the banks of that river, and that these creatures feed very greedily upon its roots. These have a very remarkable bitterness mixed with their aromatic flavour, while fresh, which goes off very much in the drying; and on comparing the taste of these roots with that of the cray-fish, there remains no doubt of the one being owing to the other.

They abound in the river Don in Muscovy, where they are laid in heaps to putrify; after which the stones called *crab's eyes* are picked out. These animals are very greedy of flesh, and flock in great numbers about carcases thrown into the water where they are, and never leave it while any remains. They also feed on dead frogs when they come into their way. In Switzerland there are some cray-fish which are red while they are alive, and others bluish. Some kinds of them also will never become red, even by boiling, but continue blackish.

The cray-fish discharges itself of its stomach, and, as M. Geoffrey thinks, of its intestines too. These, as they putrify and dissolve, serve for food to the animal; during the time of the reformation, the old stomach seems to be the first food the new one digests. It is only at this time that the stones are found called *crab's eyes*; they begin to be formed when the old stomach is destroyed, and are afterwards wrapped up in the new one, where they decrease by degrees till they entirely disappear.

CRAYER (Caspar de), was born at Antwerp in 1585, and was a disciple of Raphael Coxis, the son of that Coxis who had studied under Raphael; but he soon showed such proofs of genius, and of an elevated capacity, that he far surpassed his master, and therefore quitted him. Afterwards he made judicious observations on the particular excellencies of the most renowned masters to which he had any access; and taking nature for his constant director and guide, he formed for himself a manner that was exceedingly pleasing. The first work which established him in the favour of the court at Brussels, was a portrait of Cardinal Fer-

dinand, brother to the King of Spain, which he painted at full length, and as large as life. In that picture he succeeded so happily, that it was sent to Madrid, and received there with such concurrent approbation of the king and the whole court, that it laid the foundation of the fame and fortune of Crayer. For the king, as an acknowledgment of the painter's merit, sent him a gold chain with a medal; and added, as a farther instance of his favour, an appointment for a considerable pension. But nothing places the talents of Crayer, in a stronger light, than the testimony of so excellent an artist as Rubens. That great man went to Antwerp particularly to visit Crayer, and to see his work; and after examining attentively a picture of his painting, in the refectory of the abbey of Alleg-hem, he publicly declared that no painter could surpass Crayer. Nor was this master less distinguished by Vandyck, who always expressed a real esteem and friendship for him, and painted his portrait. He had somewhat less fire in his compositions than Rubens, but his design is frequently more correct. His composition generally consisted of a small number of figures; and with discreet judgment, he avoided the encumbering his design with superfluous particulars, or loading his subject with any thing that seemed not to contribute to its elegance or probability. He grouped his figures with singular skill, and his expressions have all the truth of nature. There is a remarkable variety in his draperies, and an equal degree of simplicity in their folds; and as to his colouring, it is admirable. Of all his cotemporary painters, he was accounted to approach nearest to Vandyck, not only in history but in portrait. He principally painted religious subjects, and was continually at work; and although he lived to a great age, yet his temperance and constant regularity preserved to him the full use of all his faculties: and to the last month of his life his pencil retained the same force and freedom which it possessed in his most vigorous time. The subject of that picture which was so honoured by the approbation of Rubens is the Centurion alighting from his horse to prostrate himself at the feet of our Saviour. It is a capital design of Crayer; and although it consists of a great number of figures, the harmony and union are well preserved.

CRAYON, a general name for all coloured stones, earths, or other minerals and substances, used in designing or painting in pastel; whether they have been beaten and reduced to a paste, or are used in their primitive consistence, after sawing or cutting them into long narrow slips. In this last manner are red crayons made, of blood-stone or red chalk; black ones, of charcoal and black lead. Crayons of all other colours are compositions of earths reduced to paste.

CRAYON-Painting. Whether the painter works with oil-colours, water-colours, or crayons, the grand object of his pursuit is still the same: a just imitation of nature. But each species has its peculiar rules and methods. Painting with crayons requires in many respects a treatment different from painting in oil-colours; because all colours used dry are in their nature of a much warmer complexion than when wet with oils, &c. For this reason, in order to produce a rich picture, a much greater portion of what painters term *cooling tints* must be applied in crayon painting than would be judicious to use in oils. Without any danger of a mistake, it is to be supposed, the not be-

Crayon,
Crayon.

Crayons.

being acquainted with this observation is one great cause why so many oil painters have no better success when they attempt crayon-painting. On the contrary, crayon-painters being so much used to those tints which are of a cold nature when used wet, are apt to introduce them too much when they paint with oils, which is seldom productive of a good effect.

We shall now endeavour to give the student some directions towards the attainment of excellence in this art.

Of the Application of the Crayons, with some previous Dispositions. The student must provide himself with some strong blue paper, the thicker the better, if the grain is not too coarse or knotty, though it is almost impossible to get any entirely free from knots. The knots should be levelled with a penknife or razor, otherwise they will prove exceedingly troublesome. After this is done, the paper must be pasted very smooth on a linen cloth, previously strained on a deal frame, the size according to the artist's pleasure: on this the picture is to be executed; but it is most eligible not to paste the paper on till the whole subject is first dead coloured. The method of doing this is very easy, by laying the paper with the dead-colour on its face, upon a smooth board or table, when, by means of a brush, the back-side of the paper must be covered with paste; the frame, with the strained cloth, must then be laid on the pasted side of the paper; after which turn the painted side uppermost, and lay a piece of clean paper upon it, to prevent smearing it: this being done, it may be stroked gently over with the hand; by which means all the air between the cloth and the paper will be forced out.

When the paste is perfectly dry, the student may proceed with the painting. The advantages arising from pasting the paper on the frame according to this method, after the picture is begun, are very great, as the crayons will adhere much better than any other way; which will enable the student to finish the picture with a firmer body of colour and greater lustre.

When the painters want to make a very correct copy of a picture, they generally make use of tiffany or black gauze, strained tight on a frame, which they lay flat on the subject to be imitated, and with a piece of sketching chalk trace all the outlines on the tiffany. They then lay the canvas to be painted on flat upon the floor, placing the tiffany with the chalked lines upon it, and with an handkerchief brush the whole over; this presents the exact outlines of the picture on the canvas. The crayon-painter may also make use of this method when the subject of his imitation is in oils; but in copying a crayon-picture, he must have recourse to the following method, on account of the glass.

The picture being placed upon the easel, let the outlines be drawn on the glass with a small camel's hair pencil dipped in lake, ground thin with oils, which must be done with great exactness. After this is accomplished, take a sheet of paper of the same size and place it on the glass, stroking over all the lines with the hand, by which means the colour will adhere to the paper, which must be pierced with pin-holes pretty close to each other. The paper intended to be used for the painting must next be laid upon a table, and the pierced paper placed upon it; then with some fine-pounded charcoal, tied up in a piece of lawn, rub over the pierced lines, which will give an exact outline; but great care must be taken not to brush this

off till the whole is drawn over with sketching chalk, which is a composition made of whiting and tobacco-pipe clay, rolled like the crayons, and pointed at each end.

When a student paints immediately from the life, it will be most prudent to make a correct drawing of the outlines on another paper, the size of the picture he is going to paint, which he may trace by the preceding method, because erroneous strokes of the sketching chalk (which are not to be avoided without great expertness) will prevent the crayons from adhering to the paper owing to a certain greasy quality in the composition.

The student will find the sitting posture, with the box of crayons in his lap, the most convenient method for him to paint. The part of the picture he is immediately painting should be rather below his face; for, if it is placed too high, the arm will be fatigued. Let the windows of the room where he paints be darkened, at least to the height of six feet from the ground; and the subject to be painted should be situated in such a manner that the light may fall with every advantage on the face, avoiding too much shadow, which seldom has a good effect in portrait painting, especially if the face he paints from has any degree of delicacy.

Before he begins to paint, let him be attentive to his subject, and appropriate the action or attitude proper to the age of the subject: if a child, let it be childish; if a young lady, express more vivacity than in the majestic beauty of a middle-aged woman, who also should not be expressed with the same gravity as a person far advanced in years. Let the embellishments of the picture, and introduction of birds, animals, &c. be regulated by the rules of propriety and consistency.

The features of the face being correctly drawn with chalks, let the student take a crayon of pure carmine, and carefully draw the nostril and edge of the nose next the shadow; then, with the faintest carmine tint, lay in the highest light upon the nose and forehead, which must be executed broad. He is then to proceed gradually with the second tint, and the succeeding ones, till he arrives at the shadows, which must be covered brilliant, enriched with much lake, carmine, and deep green. This method will at first offensively strike the eye, from its crude appearance; but in the finishing, it will be a good foundation to produce a pleasing effect, colours being much more easily sullied when too bright than when the first colouring is dull, to raise the picture into a brilliant state. The several pearly tints discernible in fine complexions must be imitated with blue verditer and white, which answers to the ultramarine tints used in oils. But if the parts of the face where these tints appear are in shadow, the crayons composed of black and white must be substituted in their place.

Though all the face when first coloured should be laid in as brilliant as possible, yet each part should be kept in its proper tone; by which means the rotundity of the face will be preserved.

Let the student be careful when he begins the eyes to draw them with a crayon inclined to the carmine tint of whatever colour the irises are of; he must lay them in brilliant, and at first not loaded with colour, but executed lightly: no notice is to be taken of the pupil yet. The student must let the light of the eye

Crayons.

Crayon.

eye incline very much to the blue cast, cautiously avoiding a staring white appearance, (which, when once introduced, is seldom overcome), preserving a broad shadow thrown on its upper part, by the eye-lash. A black and heavy teint is also to be avoided in the eye-brows; it is therefore best to execute them like a broad glowing shadow at first, on which, in the finishing, the hairs of the brow are to be painted; by which method of proceeding, the former teints will show themselves through, and produce the most pleasing effect.

The student should begin the lips with pure carmine and lake, and in the shadow use some carmine and black; the strong vermillion teints should be laid on afterwards. He must beware of executing them with stiff, harsh lines, gently intermixing each with the neighbouring colours, making the shadow beneath broad, and enriched with brilliant crayons. He must form the corner of the mouth with carmine, brown ochre, and greens, variously intermixed. If the hair is dark, he should preserve much of the lake and deep carmine teints therein; this may easily be overpowered by the warmer hair teints, which, as observed in painting the eye-brows, will produce a richer effect when the picture is finished; on the contrary, if this method is unknown or neglected, a poverty of colouring will be discernible.

After the student has covered over, or as artists term it, has dead-coloured the head, he is to sweeten the whole together, by rubbing it over with his finger, beginning at the strongest light upon the forehead, passing his finger very lightly, and uniting it with the next teint, which he must continue till the whole is sweetened together, often wiping his finger on a towel to prevent the colours being sullied. He must be cautious not to smooth or sweeten his picture too often, because it will give rise to a thin and scanty effect, and have more the appearance of a drawing than a solid painting; as nothing but a body of rich colours can constitute a rich effect. To avoid this (as the student finds it necessary to sweeten with the finger), he must commonly replenish the picture with more crayon.

When the head is brought to some degree of forwardness, let the back-ground be laid in, which must be treated in a different manner, covering it as thin as possible, and rubbing it into the paper with a leather lump. Near the face the paper should be almost free from colour, for this will do great service to the head, and by its thinness give both a soft and solid appearance. In the back ground also, no crayon that has whiting in its composition should be used, but chiefly such as are the most brilliant and the least adulterated. The ground being painted thin next the hair, will give the student an opportunity of painting the edges of the hair over in a light and free manner when he gives the finishing touches.

The student having proceeded thus far, the face, hair, and back-ground being entirely covered, he must carefully view the whole at some distance, remarking in what respect it is out of keeping, that is, what parts are too light and what too dark, being particularly attentive to the white or chalky appearances, which must be subdued with lake and carmine. The above method being properly put into execution, will produce

the appearance of a painting principally composed of three colours, viz. carmine, black, and white, which is the best preparation a painter can make for the producing a fine crayon picture.

The next step is, to complete the back-ground and the hair, as the dust, in painting these, will fall on the face, and would much injure it if that was completed first. From thence proceed to the forehead, finishing downward till the whole picture is completed.

In painting over the forehead the last time, begin the highest light with the most faint vermillion teint, in the same place where the faint carmine was first laid, keeping it broad in the same manner. In the next shade succeeding the lightest, the student must work in some light blue teints, composed of verditer and white, intermixing with them some of the deeper vermillion teints, sweetening them together with great caution, insensibly melting them into one another, increasing the proportion of each colour as his judgment shall direct. Some brilliant yellows may also be used, but sparingly; and towards the roots of the hair, strong verditer teints, intermixed with greens, will be of singular service. Cooling crayons, composed of black and white, should succeed these, and melt into the hair. Beneath the eyes, the sweet pearly teints are to be preserved, composed of verditer and white, and under the nose, and on the temples, the same may be used; beneath the lips, teints of this kind also are proper, mixing them with the light greens and some vermillion.

In finishing the cheeks, let the pure lake clear them from any dust contracted from the other crayons; then with the lake may be intermixed the bright vermillion; and last of all (if the subject should require it), a few touches of the orange-coloured crayon, but with extreme caution; after, sweeten that part with the finger as little as possible, for fear of producing a heavy disagreeable effect on the cheeks: as the beauty of a crayon-picture consists in one colour showing itself through, or rather between, another: this the student cannot too often remark, it being the only method of imitating beautiful complexions.

The eye is the most difficult feature to execute in crayons, as every part must be expressed with the utmost nicety, to appear finished; at the same time that the painter must preserve its breadth and solidity while he is particularizing the parts. To accomplish this, it will be a good general rule for the student to use his crayon in sweetening as much, and his finger as little, as possible. When he wants a point to touch a small part with, he may break off a little of his crayon against the box, which will produce a corner fit to work with in the minutest parts. If the eye-lashes are dark, he must use some of the carmine and brown ochre, and the crayon of carmine and black; and with these he may also touch the iris of the eye (if brown or hazel), making a broad shadow, caused by the eye-lash. Red teints of vermillion, carmine, and lake, will execute the corners of the eye properly; but if the eye-lids are too red, they will have a disagreeable sore appearance. The pupil of the eye must be made of pure lamp-black: between this and the lower part of the iris, the light will catch very strong, but it must not be made too sudden, but he gently diffused round the pupil.

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Crayon.

pill till it is lost in shade. When the eye-balls are sufficiently prepared, the shining speck must be made with a pure white crayon, which should be first broken to a point, and then laid on firm; but as it is possible they may be defective in neatness, they should be corrected with a pin, taking off the redundant parts, by which means they may be formed as neat as can be required.

The difficulty, with respect to the nose, is to preserve the lines properly determined, and at the same time so artfully blended into the cheek, as to express its projection, and yet no real line to be perceptible upon a close examination; in some circumstances it should be quite blended with the cheek, which appears behind it, and determined entirely with a slight touch of red chalk. The shadow caused by the nose is generally the darkest in the whole face, partaking of no reflection from its surrounding parts. Carmine and brown ochre, carmine and black, and such brilliant crayons, will compose it best.

The student having before prepared the lips with the strongest lake and carmine, &c. must with these colours make them completely correct; and when finishing, introduce the strong vermillions, but with great caution, as they are extremely predominant. This, if properly touched, will give the lips an appearance equal, if not superior, to those executed in oils, notwithstanding the seeming superiority the latter has, by means of glazing (A), of which the former is entirely destitute.

When the student paints the neck, he should avoid expressing the muscles too strong in the stem, nor should the bones appear too evident on the chest, as both have an unpleasing effect, denoting a violent agitation of the body; a circumstance seldom necessary to express in portrait-painting. The most necessary part to be expressed, and which should ever be observed, (even in the most delicate subjects,) is a strong marking just above the place where the collar bones unite; and if the head is much thrown over the shoulders, some notice should be taken of the large muscle that rises from behind the ear, and is inserted into the pit between the collar bones. All inferior muscles should be, in general, quite avoided. The student will find this caution necessary, as most subjects, especially thin persons, have the muscles of the neck much more evident than would be judicious to imitate. As few necks are too long, it may be necessary to give some addition to the stem, a fault on the other side being quite unpardonable, nothing being more ungraceful than a short neck. In colouring the neck, let the student preserve the stem of a pearly hue, and the light not so strong as on the chest. If any part of the breast appears, its transparency must also be expressed by pearly tints; but the upper part of the chest should be coloured with beautiful vermillions delicately blended with the other.

Of the Drapery. Dark blue, purple, black, pink, and all kinds of red draperies also, should be first tinged with carmine, which will render the colours much more brilliant than any other method; over this should

be laid on the paper the middle tint (a medium between the light and dark tints, of which the drapery is to be painted), except the dark masses of shadow, which should be laid on at first as deep as possible; these, sweetened with the finger, being destitute of the smaller folds, will exhibit a masterly breadth which the lesser folds, when added, ought by no means to destroy. With the light and dark tints, the smaller parts are next to be made with freedom, executing as much with the crayon, and as little with the finger as possible; in each fold touching the last stroke with the crayon, which stroke the finger must never touch. In the case of reflections, the simple touch of the crayon will be too harsh, therefore fingering will be necessary afterwards, as reflected lights are always more gentle than those which are direct. With respect to reflections in general, they must always partake of the same colour as the object reflecting, but in the case of single figures, it may be useful to make some particular observations.

In a blue drapery, let the reflections be of a greenish cast; in green draperies, make them of a yellow tint; in yellow, of an orange; in orange, reflect a reddish cast; in all reds, something of their own nature, but inclined to the yellow: black should have a reddish reflection; the reflection of a reddish tint will also present purples to the best advantage.

Of whatever colour the drapery is, the reflection on the face must partake thereof, otherwise the picture, like paintings on glass, will have but a gaudy effect.

Linen, lace, fur, &c. should be touched spiritedly with the crayon, fingering very little, except the latter; and the last touches, even of this, like all other parts, should be executed by the crayon, without sweetening with the finger.

The methods above recommended have been practised by the most celebrated crayon-painters, whose works have been held in public estimation; but the knowledge of, and ability to execute, each separate part with brilliancy and truth, will be found very insufficient to constitute a complete painter, without his judgment enables him to unite them with each other, by correctness of drawing, propriety of light and shadow, and harmony of colouring. In order to accomplish this, the student should carefully avoid finishing one part in particular, till he has properly considered the connection it is to have with the rest. The neglect of this is the principal reason why the performances of indifferent painters are so destitute of what is termed breadth, so conspicuously beautiful in the works of great masters. It must be granted, that this observation relates more particularly to large compositions, where a diversity of figures requires such a judicious disposition, that each may assist in the combination of a kind of universal harmony; yet, even in portrait-painting, the student should be particularly attentive to observe this idea of breadth, if he is desirous of acquiring that importance and dignity which constitutes excellence in painting.

Of the Materials. The perfection of the crayons consists

(A) The method with which painters in oils express transparency in the lips is, by painting them first with light vermilion tints, and, when dry, touching them over with pure lake.

Crayon.

sifts, in a great measure, in their softness; for it is impossible to execute a brilliant picture with them if they are otherwise; on which account great care should be observed in the preparing them, to prevent their being hard. In all compositions, flake-white and white-lead should be wholly rejected, because the slightest touch with either of these would unavoidably turn black.

The usual objection to crayon-painting is, that they are subject to change; but whenever this happens, it is entirely owing to an injudicious use of the above mentioned whites, which will stand only in oils. To obviate the bad effects arising from the use of such crayons, let the student make use of common whiting prepared in the following manner.

Take a large vessel of water, put the whiting into it, and mix them well together; let this stand about half a minute, then pour off the top into another vessel, and throw the gritty sediment away; let what is prepared rest about a minute, and then pour it off as before, which will purify the whiting and render it free from all dirt and grittiness. When this is done, let the whiting settle, and then pour the water from it; after which, lay it on the chalk to dry, and keep it for use, either for white crayons, or the purpose of preparing tints with other colours, for with this all other tints may be safely prepared. If the student chooses to make crayons of the whiting immediately after it is washed, it is not necessary to dry it on the chalk, for it may be mixed instantly with any other colour, which will save considerable trouble. All colours of a heavy or gritty nature, especially blue verditer, must be purified by washing after this method.

The student must be provided with a large, flexible pallet-knife, a large stone and muller to levigate the colours, two or three large pieces of chalk to absorb the moisture from the colours after they are levigated, a piece of flat glass to prevent the moisture from being absorbed too much, till the colours are rolled into form, and vessels for water, spirits, &c. as necessity and convenience shall direct.

I. REDS. It is rather difficult to procure either good carmine or good lake. Good carmine is inclined to the vermilion tint, and good lake to the carmine tint. The carmine crayons are prepared in the following manner.

1. Carmine. As their texture is inclinable to hardness, instead of grinding and rolling them, take a sufficient quantity of carmine, lay it upon the grinding-stone, mix it with a levigating knife with spirits of wine till it becomes smooth and even. The chalk-stone being ready, lay the colour upon it to absorb the spirit; but be careful that it is laid on in a proper shape for painting. If it is levigated too thin, the crayons will be too flat; and if too thick, it will occasion a waste of colour, by their adhering to the pallet-knife; but practice will render the proper degree of consistency familiar. The simple colour being prepared, the next step is to compose the different tints by a mixture with whiting; the proportion to be observed consisting of 20 gradations to one, which may be clearly understood by the following directions. Take some of the simple colour, and levigate it with spirits of wine adding about one part of washed whiting to three parts of carmine, of which, when properly incorporated, make

two parcels. The next gradation should be composed of equal quantities of carmine and whiting, of which four crayons may be made. The third composition should have one fourth carmine and three fourths whiting; of this make six crayons, which will be a good proportion with the rest. The last tint should be made of whiting, very faintly tinged with carmine, of which make about eight crayons, which will complete the above mentioned proportion. At these compound tints are levigated, they are to be led immediately upon the chalk, that the moisture may be absorbed to the proper degree of dryness for forming into crayons, which may be known by its losing the greater part of its adhesive quality when taken into the hand; if the consistency is found to be right, it may be then laid upon the glass, which having no pores will prevent the moisture from becoming too dry before it is convenient to form it into crayons, otherwise the crayons would be full of cracks and very brittle, which will be a great inconvenience when they are used in painting.

2. Lake. This is a colour very apt to be hard; to prevent which the student must observe the following particulars. Take about half the quantity of lake intended for the crayons and grind it very fine with spirits of wine; let it dry, and then pulverize it, which is easily done if the lake is good; then take the other half, and grind it with spirits, after which mix it with the pulverized lake, and lay it out directly in crayons on the chalk. This colour will not bear rolling. The simple colour being thus prepared, proceed with the compound crayons as directed before, and in the same degrees of gradation as the carmine tints.

3. Vermilion. The best is inclined to the carmine tint. Nothing is required to prepare this colour more than to mix it on the stone with soft water or spirits, after which it may be rolled into crayons. The different tints are produced by a mixture of the simple colour with whiting, according to the proportion already given.

II. BLUES. **1. Prussian blue** is a colour very apt to bind, and is rendered soft with more difficulty than carmine and lake. The same method of preparation is to be followed with this as directed with respect to lake, only it is necessary to grind a larger quantity of the pure colour, as it is chiefly used for painting draperies. The different tints may be made according to necessity, or the fancy of the painter. **2. Blue-verditer** is a colour naturally gritty, and therefore it is necessary to wash it well. Its particles are so coarse as to require some binding matter to unite them, otherwise the crayons, will never adhere together. To accomplish this, take a quantity sufficient to form two or three crayons, to which add a piece of slacked plaster of Paris about the size of a pea; mix these well together, and form the crayons, upon the chalk. This blue is extremely brilliant, and will be of great use in heightening draperies, &c. The tints must be formed with waiting as directed in the former instances, and are highly serviceable for painting flesh, to produce those pearly tints so beautiful in crayon pictures. It is not necessary to mix the compounds with spirits, as clear water will be sufficient.

III. GREENS. Brilliant-greens are produced with great difficulty. In Switzerland, they have a method of

Crayon. of making them far superior to ours. We usually take yellow ochre, and after grinding it with spirits, mix it with the powder of Prussian blue, then temper it with a knife, and lay the crayons on the chalk, without rolling them. Instead of this, some use king's yellow mixed with Prussian blue, and others brown ochre and Prussian blue. The crayons made of the two last may be rolled. Various tints may be produced by these colours, according to fancy or necessity; some to partake more of the blue, and others of the yellow.

IV. YELLOWS. 1. King's-yellow is the most useful and the most brilliant, levigated with spirits of wine, and compose the different tints as before directed. Yellow ochre, and Naples yellow ground with spirits will make useful crayons. 2. Orange is produced with king's-yellow and vermilion ground together with spirits, and the tints formed as in other cases, but no great quantity of them is required.

V. BROWNS. 1. Cullen's-earth is a fine dark brown. After six or eight of the simple crayons are prepared, several rich compound tints may be produced from it, by a mixture with carmine, in various degrees. Black, carmine, and this colour, mixed together, make useful tints for painting hair; several gradations may be produced from each of these by a mixture with whiting. Roman or brown ochre is an excellent colour, either simple or compounded with carmine. Whiting tinged in several degrees with either of these, will prove very serviceable in painting. 2. Umber may be treated in just the same manner, only it is necessary to levigate it with spirit of wine.

VI. PURPLES. Prussian blue ground with spirits and mixed with pulverized lake, will produce a good purple. Carmine thus mixed with Prussian blue, will produce a purple something different from the former. Various tints may be made from either of these compounds by a mixture with whiting.

VII. BLACK. 1. Lamb-black is the only black that can be used with safety, as all others are subject to mildew; but as good lamb-black is very scarce, the student will, perhaps, find it most expedient to make it himself; the process of which is as follows: Provide a tine cone, fix it over a lamp at such a height that the flame may just reach the cone for the foot to gather within it. When a sufficient quantity is collected, take it out, and burn all the grease from it in a crucible. It must then be ground with spirits, and laid on the chalk to absorb the moisture. Various grey tints may be formed from this by a mixture with whiting, as mentioned in former instances.— 2. Vermilion mixed with carmine: this is a composition of great use, and tints made from this with whiting will be found to be very serviceable. 3. Carmine and black is another good compound, of which five or six gradations should be made, some partaking more of the black, and others having the carmine most predominant, besides several tints by a mixture with whiting. 4. Vermilion and black is also a very useful compound, from which several different tints should be made. 5. Prussian blue and black is another good compound, and will be found of singular service in painting draperies.

It is impossible to lay down rules for the forming
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every tint necessary in composing a set of crayons, there being many accidental compositions, entirely dependent on fancy and opinion. The student should make it a rule to save the leavings of his colours: for of these he may form various tints, which will occasionally be useful.

Of rolling the crayons, and disposing them for painting. The different compositions of colours must be cut into a proper magnitude, after they are prepared, in order to be rolled into pastils, for the convenience of using them. Each crayon should be formed in the left hand with the ball of the right, first formed cylindrically, and then tapered at each end. If the composition is too dry, dip the finger in water; if too wet, the composition must be laid upon the chalk again to absorb more of the moisture. The crayons should be rolled as quick as possible; and when finished, must be laid upon the chalk again, to absorb all remaining moisture. After the gradation of tints from one colour are formed, the stone should be well scraped and cleansed with water before it is used for another colour.

When the set of crayons is completed according to the rules prescribed, they should be arranged in classes for the convenience of painting with them. Some thin drawers, divided into a number of partitions, is the most convenient method of disposing them properly. The crayons should be deposited according to the several gradations of light. The bottom of the partitions must be covered with bran, as a bed for the colours; because it not only preserves them clean, but prevents their breaking.

The box made use of when the student paints should be about a foot square, with nine partitions. In the upper corner on the left hand (supposing the box to be in the lap when he paints), let him place the black and grey crayons, those being the most seldom used; in the second partition, the blues; in the third, the greens and browns; in the first partition on the left hand of the second row, the carmines, lakes, vermilions, and all deep reds; the yellows and orange in the middle, and the pearly tints next; and as these last are of a very delicate nature, they must be kept very clean, that the gradations of colour may be easily distinguished: in the lowest row, let the first partition contain a piece of fine linen rag to wipe the crayons with while they are using; the second, all the pure lake and vermilion tints; and the other partition may contain those tints which, from their complex nature, cannot be classed with any of the former.

CRAZE MILL, or CRAZING Mill, a mill in all respects like a grist-mill to grind corn, and is so called by the tin miners, who use it to grind their tin, which is yet too great after trampling.

CREAM, a general name applicable to all substances that separate from a liquor, and are collected upon its surface; but is more particularly applied to the following.

CREAM of lime, is that part of the lime which had been dissolved in the water in its caustic state, but having again attracted some fixed air from the atmosphere, becomes incapable of solution, and therefore separates from the water in the mild state of chalk or limestone.

CREAM of milk, generally called simple cream, is the most

Crayon
||
Cream.

Cream most oily part of the milk; which being naturally only mixed, and not dissolved in the rest, soon separates from them, as being specifically lighter; after which it collects on the surface; from which it is generally skimmed, to complete the disengagement of the oily from the caseous and serous parts that is to make butter.*

Creation. Cream of milk is not only an agreeable aliment when recent, but is also useful in medicine as a lenient, when applied to tetter and erysipelas attended with pain and proceeding from an acrid humour.

* See Butter Milk and Cheese.

CREAM of Tartar. See CHEMISTRY, n° 886.

CREAT, in the manege, an usher to a riding master; or a gentleman bred in the academy, with intent to make himself capable of teaching the art of riding the great horse.

CREATION, in its primary import, seems to signify the bringing into being something which did not before exist. The term is therefore most generally applied to the original production of the materials whereof the visible world is composed. It is also, however, used in a secondary or subordinate sense, to denote those subsequent operations of the Deity upon the matter so produced, by which the whole system of nature and all the primitive genera of things received their form, qualities, and laws.

There is no subject concerning which there have been more disputes than this of creation. It is certain that none of the ancient philosophers had the smallest idea of its being possible to produce a substance out of nothing, or that even the power of the Deity himself could work without any materials to work upon. Hence some of them, among whom was Aristotle, asserted that the world was eternal both as to its matter and form. Others, though they believed that the gods had given the world its form, yet imagined the materials whereof it is composed to have been eternal. Indeed the opinions of the ancients, who had not had the benefit of revelation, were on this head so confused and contradictory, that nothing of any consequence can be deduced from them. The freethinkers of our own and of former ages have denied the possibility of creation, as being a contradiction to reason; and of consequence have taken the opportunity from thence to discredit revelation. On the other hand, many defenders of the sacred writings have asserted, that creation out of nothing, so far from being a contradiction to reason, is not only probable, but demonstrably certain. Nay, some have gone so far as to say, that from the very inspection of the visible system of nature, we are able to infer that it was once in a state of non-existence. It would be impossible for us, however, to enter into the multiplicity of arguments used on both sides; nor can we pretend to settle it, as the subject is confessedly above human comprehension.

What works of creation God is known to have performed. As to the works of creation which the Deity is known to us to have performed; all other beings, beside himself, are his creatures. Men and other animals that inhabit the earth and the seas, all the immense varieties of herbs and plants of which the vegetable kingdom consists; the globe of the earth, and the expanse of the ocean; these we know to have been produced by his power. Besides the terrestrial world which we inhabit, we see many other material bodies disposed around it in the wide extent of space. The moon, which is in a particular manner connected with

our earth, and even dependent upon it; the sun, and the other planets with their satellites, which, like the earth, circulate round the sun, and appear to derive from him light and heat; those bodies which we call fixed stars, and consider as illuminating and cherishing with heat each its peculiar system of planets; and the comets which at certain periods surprise us with their appearance, and the nature of whose connection with the general system of nature, or with any particular system of planets, we cannot pretend to have fully discovered;—these are so many more of the Deity's works, from the contemplation of which we cannot but conceive the most awful ideas of his creative power.

Matter, however, whatever the varieties of form under which it is made to appear, the relative disposition of its parts, or the motions communicated to it, is but an inferior part of the works of creation. We believe ourselves to be animated with a much higher principle than brute matter; in viewing the manners and economy of the lower animals, we can scarce avoid acknowledging even them to consist of something more than various modifications of matter and motion: The other planetary bodies which seem to be in circumstances nearly analogous to those of our earth, are surely, as well as it, destined for the habitations of rational, intelligent beings. The existence of intelligences of an higher order than man, though infinitely below the Deity, appears extremely probable:—Of those spiritual beings called Angels we have express intimation in scripture; (see the article ANGELS: Such are our notions concerning the existence of beings essentially distinct from matter, and in their nature far superior to it: these, too, must be the creatures of the Deity, and of his works of creation the noblest part. But the limits of creation we must not pretend to define. How far the regions of space extend, or how they are filled, we know not. How the planetary worlds, the sun and the fixed stars, are occupied, we do not pretend to have ascertained. We are even ignorant how wide a diversity of forms, what an infinity of living animated beings may inhabit our own globe. So confined is our knowledge of creation; yet so grand, so awful, that part which our narrow understandings can comprehend!

Concerning the periods of time at which the Deity executed his several works of creation, it cannot be pretended that mankind have had opportunities of receiving very particular information. From viewing the phenomena of nature, and considering the general laws by which they are regulated, we cannot draw any conclusive or even plausible inference with respect to the precise period at which the universe must have begun to exist. We know not, nor can we hope to ascertain, whether the different systems of planets circulating round our sun and the other fixed stars, were all created at one period, or each at a different period. We cannot even determine, from any thing that appears on the face of nature, whether our earth was not created at a later period than any of her fellow planets which revolve round the same sun. Astronomers are, from time to time, making new discoveries in the heavens; and it is impossible to say whether some of these successive discoveries may not be owing to successive creations.

Philosophers have, indeed, formed some curious conjectures.

2 The periods of time at which God executed his works of creation.

Creation. conjectures concerning the antiquity of the earth, from the appearances of its surface, and from the nature and disposition of its interior strata. The beds of lava in the neighbourhood of volcanoes have afforded ground for some calculations, which, though they do not fix the period of the earth's origin, are yet thought to prove that period to have been much more remote

* *Brydone's Tour thro' Sicily and Malta.* than the earliest age of sacred or profane history. * In the neighbourhood of mount *Ætna*, or on the sides of that extensive mountain, there are beds of lava covered over with a considerable thickness of earth; and at least another, again, which, though known from ancient monuments and historical records to have issued from the volcano at least 2000 years ago, is still almost entirely destitute of soil and vegetation: in one place a pit has been cut through seven different strata of lava; and these have been found separated from each other by almost as many thick beds of rich earth. Now, from the fact, that a stratum of lava 2000 years old is yet scantily covered with earth, it has been inferred by the ingenious canon *Recupero*, who has laboured 30 years on the natural history of mount *Ætna*, that the lowest of these strata which have been found divided by so many beds of earth, must have been emitted from the volcanic crater at least 14000 years ago; and consequently that the age of the earth, whatever it may exceed this term of years, cannot possibly be less. Other facts of a similar nature likewise concur to justify this conjecture.

But all these facts are as nothing in comparison with the long series which would be requisite to establish such a conjecture as an incontrovertible truth. And, besides, any evidence which they can be supposed to afford, may be very easily explained away. The bed of lava which in the course of 2000 years has scarce acquired a covering of earth, is confessed to stand in a situation in which it is exposed to the spray of the sea, and to all the violence of winds and rains. In such a situation, it cannot be thought that a thick bed of earth could, in any length of time, be formed on it: we might as well expect depth of soil and vigorous vegetation on the craggy cliffs of hills. In crevices here and there over it, in which the earth has been retained, there is a depth of soil which supports large trees. This fact, therefore, admits of no such inference as that which *Recupero* has pretended to deduce from it. The local circumstances, again, of the seven strata that have been pierced through, are very different. They are situated at *Jaci Reale*, in a situation where showers of ashes from the volcano must frequently fall; and where whatever falls must be naturally retained and accumulated:—so that seven beds of earth might be formed on these seven strata of lava much sooner than one thin layer could be formed on the stratum above mentioned. In other places, some of which are within the influence of the same awful volcano, and some adjacent to that of *Vesuvius*, soil is known to have accumulated on lava with the help of showers of ashes from the volcanoes, with sufficient rapidity to justify this supposition concerning the coverings of the strata at *Jaci Reale*. From the observation of these phenomena of volcanoes, therefore, no facts have been gained that can help us to determine with any certainty the earth's age. And so wide is the variety of circumstances to be here taken into ac-

count, that it cannot be hoped that this desideratum will be ever supplied from this quarter. See further the article *EARTH*; n^o 177 and 178.

But by examining the composition and arrangement of the interior strata of the globe, and by viewing the general appearance of its surface, the ingenuity of philosophers has, with better hopes, sought to guess at the length of time during which it must have existed. Observing the exuviae of sea and land animals deposited at profound depths under ground, and accompanied with vegetable bodies in a good state of preservation, as well as with oleaginous and bituminous substances which have in all probability been formed from vegetable bodies; and remarking at the same time with what confusion the other materials, composing the crust of this terrestrial ball, are, in various instances, not arranged, but cast together; they have concluded that the earth must have existed for many an age before the earliest events recorded in sacred or profane history, and must have undergone many a revolution, before it settled in its present state. Such at least are the ideas which *Buffon* and *M. de Luc*, and also *Dr Hutton*†, seem desirous to impress on us with concerning its changes and antiquity.—It will be only doing justice to these philosophers to acknowledge, that they have collected, with amazing industry, almost every fact in the natural history of the earth that can serve to give plausibility to their conjectures. But still their facts, besides the inconsistency of many of them, are by far too scanty to warrant the conclusions which they have pretended to deduce from them. See the article *EARTH*.

The voice of profane history is far from being decisive concerning the age of the world; nor is it to be expected that it should. When the earth first arose into existence, we can be at no loss to conceive that mankind were not spectators of the event: and we may naturally imagine that the first human beings who occupied it, would be too much busied in furnishing themselves with the immediate necessities and the conveniences of life, to think of curious researches into its origin, or even their own. Profane history is not, however, without accounts of the age of the earth and the origin of human society; but those accounts are various and contradictory.—*Plato* in his dialogue intitled *Critias*, mentions his celebrated *Atalantis* to have been buried in the ocean about 9000 years before the age in which he wrote. He asserts it to have been well known to the Egyptian priests and to the cotemporary inhabitants of *Attica*. The learned world, indeed, generally agree in regarding his accounts of that island as a fiction, which the author himself did not design to be understood in any other light: some, however, are more credulous, and others go so far as to acknowledge doubts: and, if the existence of such an island, at a period so distant, be admitted as a fact worthy of any credit, the age of the world may be reckoned as at least considerably more than 12,000 years. The pretensions of the Chinese represent the world as some hundreds of thousands of years older: and we are also told* that the astronomical records of the ancient Chaldeans carried back the origin of society to a very remote period; no less than 473,000 years. The Egyptian priests reckoned between *Menes* and *Sethon* 341 generations†. But these accounts

Creation. are so discordant, and so slenderly supported by evidence, that we cannot hesitate to reject them all as false; the fables of historians scarce merit so much attention as the hypotheses of philosophers.

4
The era of the creation as stated in profane history.

When from profane we turn to sacred history, we may reasonably expect more accurate and more credible information concerning the antiquity of the globe. As the authenticity of the Holy Scriptures is so incontrovertibly established, wherever they afford evidence concerning any fact, that evidence must be regarded as decisive. A fact so important as the present may be thought highly worthy of a place in them. Unfortunately, however, even the sacred writings do not fix the era of the creation with sufficient accuracy; they leave us, in some measure, at a loss whether to extend what they say concerning that era to the whole contents of created space, or to confine it to our earth and its inhabitants: different copies give different dates; and even in the same copy, different parts relating the same events, either disagree or do not speak decisively with regard to the length of the time in which they passed.—In the beginning of the sixth chapter of the first book of Kings, the time which elapsed between the departure of the children of Israel from Egypt, and the period at which Solomon laid the foundation of his temple, is said to have been 480 years: And in the book of Judges again, the age of all the patriarchs amounts to 592 years. † The Hebrew copy of the bible, which we Christians for good reasons consider as the most authentic, dates the creation of the world 3944 years before the Christian era. The Samaritan bible, again, fixes the era of the creation 4305 years before the birth of Christ. And the Greek translation, known by the name of the *Septuagint* version of the bible, gives 5270 as the number of the years which intervened between those two periods. As many other different calculations of the years contained in the same intermediate space of time, might be formed upon other dates in the sacred volume, differing in the different copies. By comparing the various dates in the sacred writings, examining how these have come to disagree and to be diversified in different copies, endeavouring to reconcile the most authentic profane with sacred chronology, and eking out deficiency of dates and evidence with conjecture; some ingenious men have formed schemes of chronology, plausible indeed, but not supported by sufficient authorities, which they would gladly persuade us to receive in preference to any of those above mentioned. Usher makes out from the Hebrew bible 4004 years, as the term between the creation and the birth of Christ: Josephus, according to Dr Wills and Mr Whiston, makes it 4658 years; and M. Pezron, with the help of the *Septuagint*, extends it to 5872 years. Usher's system is the most generally received.

But though these different systems of chronology are so inconsistent and so slenderly supported, yet the differences among them are so inconsiderable in comparison with those which arise before us when we contemplate the chronology of the Chinese, the Chaldeans, and the Egyptians, and they agree so well with the general information of authentic history and with the appearances of nature and of society, that

they may be considered as nearly fixing the true period of the creation of the earth.

Profane history cannot be expected to contain an account of the first events which passed after the creation of the substances of which the universe consists. The conjectures of ancient philosophers on this subject cannot merit attention; for vague tradition, and the appearances of nature, the only data on which they could proceed in forming their conjectures, could admit of no fair inductions concerning those events; and besides, instead of listening to tradition, or examining the appearances of nature, they generally consulted imagination, and imagination alone, on such occasions. Here, therefore, we have nothing to hope but from the sacred writings. From them we may expect historical information, not to be obtained from any other source. What they communicate is communicated on divine authority; and it is only on such authority we can receive any accounts concerning the creation.

A few hints in the book of Job, afford the earliest information to be found in the scriptures concerning the creation of the world. "Where wast thou when I laid the foundations of the earth, when the morning stars sang together, and all the sons of God shouted for joy?" "Behold, he put no trust in his servants, and his angels he charged with folly." "And unto man, (or to Adam), he said, Behold, the fear of the Lord is wisdom, and to depart from evil is understanding." These passages rather hint at than relate facts. But it has been inferred from them, that there were stars in the firmament, and angels in heaven, before the formation of our globe; that angels as well as man have fallen; and that other injunctions, besides that of abstaining from the forbidden fruit, were laid on Adam when he was first placed in Paradise. If the interpretation be admitted as just, the first of these facts may be considered as forming, as it were, a point with which our knowledge of the works of the Deity commences: the period of time at which the second event took place is not specified; and the precept to Adam must no doubt have been uttered after he was formed and inspired with intelligence. Yet with regard to the first of the above quotations from the book of Job, the only one that is of importance to us at present, it must be acknowledged, that it has been differently understood. The morning stars might sing together, and the sons of God shout for joy, on account both of their own creation and of the creation of the earth at one time; and yet Job, having been himself made a conscious being at a much later period, not be able to tell where he was at that era of exulting gratitude and congratulation.

Moses relates, that "in the beginning God created the heavens and the earth. And the earth (continues he) was without form and void; and darkness was upon the face of the deep: and the spirit of God moved upon the face of the waters. And God said, Let there be light; and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light day, and the darkness he called night: and the evening and the morning were the first day." During five succeeding days the work of creation was carried on. On the

Creation.

5
No information on this head to be obtained from any other source but sacred history.

6
Hints concerning the creation in the book

* Chap. xxxviii. ver. 4 & 7. † Ch. iv. ver. 18. ‡ Ch. xxviii. ver. 28.

† Milne's Lectures, Lect. I.

7
Mosaic account of the creation. • Gen. i. 1.

† Universal Hist. vol. i. Preface.

Creation. the second day, a firmament was made to separate the waters, and that firmament called *heaven*: on the third day, the waters were collected into seas, and the land from which the waters retired caused to produce grass and trees and other plants: on the fourth day, lights were made to appear in the firmament; to enlighten the earth, to divide the day from the night, and to distinguish time into seasons and years: on the fifth day, the seas were peopled with whales and other fishes, and the air with fowls: on the sixth day, the earth was furnished with reptiles and quadrupeds of all kinds; and on the same day, the first human pair, the progenitors of all the human race, were created in God's own image.

8
Difficulties
occurring
in the above
account.

Some difficulties occur in comparing this account of the creation with the laws which appear at present to regulate the system of nature. We find it hard to conceive how the earth, while yet a stranger to the influence of the sun, could experience the vicissitude of day and night; and are astonished at the rapidity with which trees and herbage first overspread its surface. The condition of matter when the earth was without form and void, and the operation of the spirit of God on the face of the waters, are equally mysterious.

9
Attempts
to solve
those diffi-
culties. Dr
Burnet's
theory.

Some ingenious men have eagerly laboured to remove these difficulties. Among these is Dr Burnet, whose theory of the earth has now been long considered as fanciful and ill-founded. He supposes all the celestial bodies, even the sun and all the other planets of the solar system, to have existed long before the earth. The chaos on which the spirit of God moved, consisted, according to him, of the first principles from which all terrestrial bodies have been formed. When those laws by which the material world is regulated first began to operate on the mass, he supposes that its grosser and heavier parts would sink towards the centre, and there form a solid ball. Around this solid ball two species of particles would still float together in confusion. Of these he thinks one, being more volatile, would by degrees make its escape from the other, would leave it still recumbent on the solid centre, and spread around it in an atmosphere. The middle stratum he composes of aqueous and oleaginous fluids; and he makes no doubt, that after the air had made its escape, the levity of the oleaginous fluids would enable them to rise above the aqueous, and dispose themselves next the surface of the liquid mass. On them he supposes the impure atmosphere to have then deposited a quantity of terrene particles, sufficient to form, by intermixture with the oils, a thick crust of rich earth for the production of plants and herbage, and to afford an habitation to animals. This delicate shell he was careful not to furrow with seas or load with mountains; either of these would have reduced all to confusion. Such is *his* earth; and after moulding it with so much ingenuity, and into so happy a form, he contents himself, without venturing to use the same freedoms with the remaining part of Moses's account of the creation.

10
Objections
to Dr Bur-
net's theo-
ry.

But Moses affords nothing that can be with any propriety used in the foundation of such a theory: he tells not whether the chaos consisted of those terrene, and aqueous, and oleaginous, and aerial particles which Dr Burnet finds in it; he confines not the seas within

a crust of earth; nor does he inform us that the scenery of nature was not diversified by hills and vales. Besides, the author of this theory has, without any evidence, supposed matter to have been originally under the influence of laws very different from those by which it is at present regulated. Oil, indeed, while fluid, floats above water: but in a concrete state, it sinks in water like other solid bodies. If reduced into that state by combination with terrene matters, sufficient to render the mixture proper for the nourishment and production of vegetables; its specific gravity will be still greater, and it will consequently sink so much the sooner. How a concrete substance, consisting of earth and oil, could float on water, appears an inexplicable enigma. But we need not here take farther pains in combating and triumphing over this theory, which has long since fallen and sunk to its grave.

Mr Whiston treats both the scriptures and the laws of nature with greater reverence. Yet he certainly involves himself in no trifling difficulties in attempting to solve those which Moses presents. He supposes the sun, moon, and stars to be all more ancient than the earth. The chaos from which the earth was formed, he represents as having been originally the atmosphere of a comet. The six days of the creation he would persuade us to believe equal to six of our years: for he is of opinion, that the earth did not revolve daily round its axis, but only annually round its orbit, till after the fall of man.

On the first day or year, therefore, the more ponderous parts of the chaos were, according to this theory, conglomerated into an orb of earth, the chinks and interstices over that orb filled up with water, and the exterior part or atmosphere rarefied, so as to admit some faint glimmering of the rays of the sun.

On the second day, the atmosphere was diffused to its due extent around the earth, and reduced to a degree of rarity and purity which rendered it still more suitable for the transmission of light; the earth was still more consolidated; and the waters being almost entirely excluded from the interstices which they before occupied, were partly spread over the surface of the earth, and partly raised in vapour into the atmosphere or firmament.

On the third day, the earth's surface became so irregular, in one place rising into hills, in another sinking into vales, as to cause the waters, which were before equally diffused, to collect into seas and lakes, leaving large tracts of ground unoccupied. And no sooner was a part of the earth's surface left bare by the waters, than the general influence of the sun produced on it a rich covering of herbage, and all the different species of vegetables.

On the fourth day, the earth was rendered subject to the regular influence of the sun, moon, and stars.

On the fifth day or year, things were so far advanced, that fishes and fowls were now produced from the waters.

On the sixth day was the earth furnished with animals; and the lord of all the other animals, man, was now created.

Such is Mr Whiston's account of the phenomena of the Mosaic creation. But he likewise assumes much more than can be reasonably granted. The atmosphere.

11
Mr Whis-
ton's theo-
ry.

12
Objections
to Mr Whi-
ston's the-
ory.

Creation. sphere of a comet could not well be the primitive chaos; it is not an obscure, but a pellucid fluid; and its exterior strata, if of the same nature with the matter of our earth, must be scorified by its near approaches to the sun. Had the earth not begun to move round its axis till after the work of creation was completed, the immoderate degrees of heat and cold which its different parts would have alternately felt, would in all probability have proved fatal to both plants and animals. Even the most artful interpretation of Moses's words cannot represent him as meaning to inform us that the sun and moon were created at different periods. But philosophy will scarce permit us to imagine that the moon was formed before the earth. And therefore we cannot upon good grounds agree with Mr Whiston, that the creation of the earth was later than that of the other bodies of the solar system.

¹³
M de Luc's theory and objections. Among others who have endeavoured to explain the original formation of the earth, and the changes which it has undergone, is M. de Luc. This cosmologist, like Mr Whiston, thinks that the days of the creation were much longer periods of time than our present days. He seems to think that the earth had existed long before the Mosaic creation; but began at that era to experience new changes, and to be regulated by new laws: that all the different events described by Moses in his history of the creation, actually took place in the order in which he relates them; but that Moses's days are indefinite spaces of time, which must have been very long, but of which we cannot hope to ascertain the precise length. These are ingenious conjectures; but they do not appear necessary, nor are they justified by facts. For a fuller and more close investigation of this part of the subject, we must refer to the article EARTH: and shall now close the present article with a short explanation of what appears to us the most natural way of understanding Moses's account of the creation.

Univ. Hist. vol. i. p. 85. It has been conjectured*, with great probability, that the creation of which Moses is the historian, was neither confined to the earth alone, nor extended to the whole universe. The relation which all the planets of the solar system bear to the same illuminating body countenances the conjecture, that they, together with the luminary by which they are enlightened, were all created at one period: but it would perhaps be to conceive too meanly of the benevolence, wisdom, and active power of the Deity, to suppose that before that period these had never been exerted in any work of creation. Yet even here we have not demonstrative evidence.

On the supposition that the whole solar system was created at once, which has at least the merit of doing no violence to the narrative of Moses, the creation of the sun and the other planets may be understood to have been carried on at the same time with the creation of the earth. In that case, even in the course of the first day, though not longer than our present days, those bodies might be reduced to such order, and their relative motions so far established, as to begin the distinction between light and darkness, day and night.

On the second day, we may naturally understand from Moses's narrative, that the atmosphere was purified, and the specific gravities of aqueous vapour and

atmospheric air so adjusted, as to render the latter capable of supporting the former.

On the third day the waters were first collected into lakes and seas: but in what manner, we cannot well determine. Some call in the operation of earthquakes; others tell us, that when the earth was first formed, the exterior strata were, at different parts over its surface, of different specific gravities; and that the more ponderous parts now sunk nearer the common centre, while the lighter parts still remaining equally remote from it as before, formed islands, continents, hills, and mountains. But these are mere fancies; and we have not facts to offer in their stead. On the latter part of this day vegetables were caused to spring up over the earth. Their growth must have been much more rapid than we ever behold it now: but by what particular act of supernatural power that might be effected, we should in vain inquire.

On the fourth day the sun, moon, and stars, were made to appear. But according to the conjecture which we have mentioned as plausible, though without ascribing to it the evidence of certain truth, those heavenly bodies are to be considered as having been created before this day. But they might now begin to exert their full influence on the earth in the same manner as they have since continued to do.

The creation of the inanimate world was now finished, and the earth prepared for the reception of animals. On the fifth day, therefore, were the living inhabitants of the air and the waters created.

On the sixth day the inferior animals inhabiting the earth were first created; and after that, the whole work was crowned by the creation of a male and a female of the human species. To the account of the creation of the animals, nothing certain can be added in explanation of Moses's narrative. No more but one pair of the human species were at first created: the same economy might possibly be observed in the creation of the inferior animals.

CREBILLON (Prosper Joliot de), a French writer of tragedy, and usually ranked after Corneille and Racine, was born at Dijon in 1674. He was originally destined to the profession of the law, and placed at Paris with that view; but the impetuosity of his passions rendering him unfit for business, he was urged by some friends, who discerned very well his natural turn, to attempt dramatic compositions. He complied, but not till after many refusals; and gave at length a tragedy, which met with great success. He then marched on in the career he had begun, but was checked by a fit of love for an apothecary's daughter; which fit of love ended in marriage. His father, doubly enraged at his son for thus surrendering himself to the two demons of Love and Poetry, disinherited him; but falling sick some years after, in 1707, he re-established him in all his rights, and died. Crebillon was, however, little better for his acquisitions, the greatest part being probably wasted before they came; and thus, though high in fame and at the prime of life, he still continued poor. He lost his wife in 1711, and fortune long frowned upon him; till at last he obtained a place in the French academy, and the employment of censor of the police. He was afterwards in good circumstances, and happy to the end of his life, which was a very long one; for he did not die

Creation.
Crebillon.

Creey || **Credit.** die till 1762, aged 88. He was much regretted and lamented, as old as he was; being a very worthy man, and of many and great virtues. He was of a temperament extremely robust, without which he could not have held out so long; for he eat prodigiously, and continued to the last so to do. He slept little, and lay as hard as if upon the floor; not from any pious principle of mortifying, but because he liked it. He was always surrounded with about 30 dogs and cats; and used to smook a good deal of tobacco, to keep his room sweet against their exhalations. Whenever he was ill, he used to manage himself according to his own fancy and feelings; for he always made a jest of physic and physicians. He was a dealer in *bons mots*. Being asked one day in full company, which of his works he thought the best? "I don't know (says he) which is my best production; but this (pointing to his son) is certainly my worst."

CRECY, CRESCY, or CRESSY. See **CRESSY**.

CREDENTIALS, letters of recommendation and power, especially such as are given to ambassadors or public ministers, by the prince or state that sends them to foreign courts.

CREDIBILITY, a species of evidence, less indeed than absolute certainty or demonstration, but greater than mere possibility: it is nearly allied to probability, and seems to be a mean between possibility and demonstration.

CREDIT, in commerce, a mutual trust or loan of merchandise or money, on the reputation of the probity and solvability of a dealer.

Credit is either public or private. Every trader ought to have some estate, stock, or portion of his own, sufficient to carry on the traffic he is engaged in: they should also keep their dealings within the extent of their capital, so that no disappointment in their returns may incapacitate them from supporting their credit. Yet traders of worth and judgment may sometimes lie under the necessity of borrowing money for carrying on their business to the best advantage; but then the borrower ought to be so just to his own reputation and to his creditors, as to be well assured that he has sufficient effects within his power to pay off his obligations in due time. But if a trader should borrow money to the extent of his credit, and launch out into trade so as to employ it with the same freedom as if it was his own proper stock, such a way of management is very precarious, and may be attended with dangerous consequences. Merchants ought never to purchase their goods for exportation upon long credit, with intent to discharge the debt by the return of the same goods; for this has an injurious influence on trade several ways: and if any merchant has occasion to make use of his credit, it should always be for the borrowing of money, but never for the buying of goods; nor is the large credit given to wholesale traders a prudential or justifiable practice in trade.

The public credit of a nation is said to run high when the commodities of that nation find a ready vent, are sold at a good price, and when dealers may be safely trusted with them: also when lands and houses find ready purchasers; when money is to be borrowed at a low interest; when people think it safe and advantageous to venture large stocks in trade; and when notes, mortgages, &c. will pass for money.

Letters of CREDIT, are those given to persons in whom a merchant, &c. can trust, to take money of his correspondent abroad, in case he happens to need it. Credit || Creech.

CREDIT is also used for the currency which papers or bills have in the public or among dealers. In this sense credit is said to rise, when in negotiating the shares of the company, they are received and sold at prices above *par*, or the standard of their first creation. Discredit is opposed to credit, and is used where money, bills, &c. fall below *par*.

CREDIT was also anciently a right which lords had over their vassals; consisting in this, that during a certain time they might oblige them to lend them money. In this sense, the Duke of Brittany had credit during fifteen days on his own subjects, and those of the bishop of Nantes; and the bishop had the same credit or right among his subjects and those of that prince.

CREDITON, a market-town in Devonshire, considerable for a good woollen manufactory: it is situated about 9 miles north-west of Exeter, in W. Long. 3. 50. and N. Lat. 50. 50.

CREDITOR, a person to whom any sum of money is due, either by obligation, promise, or otherwise. See **DEBT**.

CREDULITY denotes a weakness of mind, by reason of which a person yields his assent to propositions or facts, before he has considered their evidence.

CREECH (Thomas), eminent for his translations of ancient authors both in prose and verse, was son of Thomas Creech, and born near Sherborne in Dorsetshire in 1659. He was educated in grammar learning under Mr Curganven of Sherborne, to whom he afterwards dedicated a translation of one of Theocritus's Idylliums; and entered a commoner of Wadham college in Oxford in 1675. Wood tells us that his father was a gentleman; but Giles Jacob says, in his *Lives and characters of English Poets*, that his parents circumstances not being sufficient to afford him a liberal education, his disposition and capacity for learning raised him up a patron in Colonel Strangeways, whose generosity supplied that defect. Be that as it will, Creech distinguished himself much, and was accounted a good philosopher and poet, and a diligent student. June 13. 1683 he took the degree of master of arts, and not long after was elected probationer fellow of All-souls college; to which, Jacob observes, the great reputation acquired by his translation of Lucretius recommended him. Wood tells us, that upon this occasion he gave singular proofs of his classical learning and philosophy before his examiners. He also took the degree of B. D. on the 18th of March 1696. He now began to be well known by the works he published; but Father Nicéron observes, that they were of no great advantage to his fortune, since his circumstances were always indifferent. In 1699, having taken holy orders, he was presented by his college to the living of Welwyn in Hertfordshire; but this he had not long enjoyed before he put an end to his own life. The motives of this fatal catastrophe have been variously represented. The author of the *Nouvelles de la Republique des Lettres* informs us, that in the year 1700 Mr Creech fell in love with a woman who treated him with

Creed
||
Creep

with great neglect, though she was complaisant enough to several others. This affront he could not bear, and resolved not to survive it. Whereupon he shut himself up in his study, where he hanged himself about the end of June 1700, and was found in that circumstance three days after. The Poetical Register says nothing of the particular manner of his death, but only that he unfortunately made away with himself in the year 1701; and ascribes this fatal catastrophe of Mr Creech's life to the moroseness of his temper, which made him less esteemed than his great merit deserved, and engaged him in frequent animosities and disputes upon that account. But from an original letter of Arthur Charlett, preserved in the Bodleian library, it has lately been discovered, that this unhappy event was owing to a very different cause. There was a fellow collegian of whom Creech frequently borrowed money; but repeating his applications too often, he met one day with such a cold reception, that he retired in a fit of gloomy disgust, and in three days was found hanging in his study. Creech's principal performances are, 1. A translation of Lucretius. 2. A translation of Horace; in which, however, he has omitted some few odes. 3. The Idylliums of Theocritus, with Rapin's Discourse of Pastorals. 4. A translation of Manilius's Astronomicon. Besides translations of several parts of Virgil, Ovid, and Plutarch; printed in different collections.

CREED, a brief summary of the articles of a Christian's belief.

The most ancient form of creeds is that which goes under the name of the apostolic creed: besides this, there are several other ancient forms and scattered remains of creeds to be met with in the primitive records of the church. The first is the form of apostolical doctrine, collected by Origen; the second is a fragment of a creed preserved by Tertullian; the third remains of a creed is in the works of Cyprian; the fourth, a creed composed by Gregory Thaumaturgus, for the use of his own church; the fifth, the creed of Lucian the martyr; the sixth, the creed of the apostolical constitutions. Besides these scattered remains of the ancient creeds, there are extant some perfect forms, as those of Jerusalem, Cesarea, Antioch, &c.

The most universal creeds are, the APOSTOLICAL, the ATHANASIAN, and the NICENE creeds. See these articles.

These three creeds are used in the public offices of the church of England; and subscription to them is required of all the established clergy. Subscription to these was also required of the dissenting teachers, by the toleration act; but from which they are now relieved by 19 Geo. III.

CREEK, a part of a haven, where any thing is landed from the sea. So many landing places as there are in a harbour or port, so many creeks there are. It is also said to be a shore or bank whereon the water beats, running in a small channel from any part of the sea; from the Latin *crepido*. This word is used in the stat. 4 Hen. IV. c. 20. and 5 Eliz. c. 5.

CREENGLES. See CRINGLE.

CREEPER, in ornithology. See CERTHIA.

CREEPER, in naval affairs, an instrument of iron resembling a grappling, having a *shank*, and four hooks or claws. It is used to throw into the bottom of any

N^o 94.

river or harbour, with a rope fastened to it, to hook and draw up any thing from the bottom which may have been lost. See Plate CL.

CRELLIUS (John), a famous Socinian, born in 1590, in a village near Noremberg. In 1612 he went into Poland, where the Unitarians had a school, in which he became professor of divinity, and minister at Crackow, where he died in 1632, aged 42. He was the author, 1. Of a famous Treatise against the Mystery of the Trinity; 2. Commentaries on a part of the New Testament; and other works. All of them are scarce.

CREMA, a city and bishop's see in Italy, capital of a district of the Milanese, called from it *Crema*: it stands almost in the middle between Milan and Mantua, in E. Long. 10. 15. and N. Lat. 45. 20.

CREMASTER, in anatomy, the name of a muscle of the testicle, of which there is one on each side. See ANATOMY, *Table of the Muscles*.

CREMATION is sometimes used for burning, particularly when applied to the ancient custom of burning the dead. This custom is well known to have prevailed among most eastern nations, and continued with their descendants after they had peopled the different parts of Europe. Hence we find it prevailing in Greece, Italy, Gaul, Britain, Germany, Sweden, Norway, and Denmark, till Christianity abolished it.

CREMONA (anc. geog.), a Roman colony, with municipal rights, settled beyond the Po, below the confluence of the Addua, on the report of Hannibal's march into Italy (Polybius): a town at this day still maintaining its name and flourishing state. It was an opulent and mercantile city; but suffered greatly in the civil wars of Augustus (Virgil). In the war with Vitellius, it was destroyed by the partizans of Vespasian; but was soon after rebuilt by the munificence of the citizens and exhortations of Vespasian, (Tacitus). Now capital of the Cremonese, in the Duchy of Milan. E. Long. 10. 30. Lat. 45.

CRENATED, in botany. See BOTANY-Index.

CRENELLE, or IMBATTLED, in heraldry, is used when any honourable ordinary is drawn, like the battlements on a wall to defend men from the enemies shot. This attribute belongs to the arms of such as have defended castles for their prince or country, or of such as are skilled in architecture.

CRENOPHYLAX, in antiquity, a magistrate of Athens, who had the inspection of fountains.

CREODIBA, in the customs of the middle age, a robbery and murder committed in a wood, where the body of the person killed was burnt in order to prevent any discovery of the crime. The word, says Wendelinus, is compounded of *cray* and *diven*, that is, "wood-robbers."

CREOLES, a name given to the families descended from the Spaniards who first settled at Mexico in America. These are much more numerous than the Spaniards properly so called, and the Mulattoes, which two other species of inhabitants they distinguish; and are excluded from all considerable employments.

CREON, king of Corinth, was son of Syphilus. He promised his daughter Glauce to Jason, who had repudiated Medea. To revenge the success of her rival, Medea sent her for a present a gown covered with poison. Glauce put it on, and was seized with sudden pains.

Her

Crellius
||
Creon.

Creon Her body took fire, and she expired in the greatest torments. The house also was consumed by the fire, and Creon and his family shared Glaucus's fate.

Crepitation.

CREON, son of Menæceus, was father to Jocasta, the wife and mother of Oedipus. At the death of Laius, who had married Jocasta, Creon ascended the vacant throne of Thebes. As the ravages of the Sphinx were intolerable, Creon offered his crown and daughter in marriage to him who could explain the enigmas which the monster proposed. Oedipus was happy in his explanations, and he ascended the throne of Thebes and married Jocasta without knowing that she was his mother, and by her he had two sons, Polynices and Eteocles. These two sons mutually agreed after their father's death to reign in the kingdom each a year alternately. Eteocles first ascended the throne by right of seniority; but when he was once in power he refused to resign at the appointed time, and his brother led against him an army of Argives to support his right. The war was decided by a single combat between the two brothers. They both killed one another, and Creon ascended the throne till Leodamus the son of Eteocles should be of sufficient age to assume the reins of government. In his regal capacity he commanded that the Argives, and more particularly Polynices, who was the cause of all the bloodshed, should remain unburied. If this was in any manner disobeyed, the offenders were to be buried alive. Antigone the sister of Polynices transgressed, and was accordingly punished. Hæmon the son of Creon, who was passionately fond of Antigone, killed himself on her grave, when his father refused to grant her pardon. Creon was afterwards killed by Theseus, who had made war with him because he refused burial to the Argives.

CRÉPANCE, in the manege, a chop or cratch in a horse's leg, given by the spunges of the shoes of one of the hinder feet crossing and striking against the other hinder foot. This cratch degenerates into an ulcer.

CREPIDÆ, among the Romans, a kind of slippers or shoes, which were always worn with the *pallium*, as the *calcei* were with the *toga*.

CREPIS, HAWK-WEED: A genus of the polygamia superflua order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is naked; the calyx calyculated with deciduous scales; the pappus feathery and stalked. There are 14 species, most of them herbaceous annuals, rising to the height of a foot or a foot and an half; and having their branches terminated by ligulated compound red and yellow flowers. These are very large, and consist of many flat florets spread over one another imbricatum, and when fully blown appear as if radiated. They are very conspicuous and beautiful: and appear in June, July, and August. They are succeeded by plenty of seed, which, if permitted to scatter on the ground, will produce a number of young plants without further trouble.

CREPITATION, that noise which some salts make over the fire in calcination, called also *detonation*.

CREPITATION is also used in surgery, for the noise made by the ends or pieces of bones, when the sur-

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geon moves a limb to assure himself by his ear of the existence of a fracture.

CREPUNDIA, in antiquity, a term used to express such things as were exposed along with children, as rings, jewels, &c. serving as tokens whereby they afterwards might be known.

CREPUSCULUM, in astronomy, twilight; the time from the first dawn or appearance of the morning to the rising of the sun; and again, between the setting of the sun and the last remains of day.

Papias derives the word from *creperus*; which, he says, anciently signified *uncertain, doubtful*, q. d. *a dubious light*. The crepusculum is usually computed to begin and end when the sun is about 18 degrees below the horizon; for then the stars of the sixth magnitude disappear in the morning, and appear in the evening. It is of longer duration in the solstices than in the equinoxes, and longer in an oblique than in a right sphere.

The crepuscula are occasioned by the sun's rays refracted in our atmosphere, and reflected from the particles thereof to the eye. See **TWILIGHT**.

CRESCENT, the new moon, which, as it begins to recede from the sun, shows a little rim of light, terminating in points or horns, which are still increasing till it become full and round in the opposition. The word is formed from *creresco*, "I grow."

The term is also used for the same figure of the moon in its wane or decrease, but improperly; because the points or horns are then turned towards the west, whereas they look to the east in the just crescent.

CRESCENT, in heraldry, is a bearing in form of a half moon. The Ottomans bear sinople, a crescent montant, argent.

The crescent is frequently used as a difference in coat-armour, to distinguish it for that of a second brother or junior family.

The figure of the crescent is the Turkish symbol; or rather is that of the city Byzantium, which bore this device from all antiquity; as appears from medals struck in honour of Augustus, Trajan, &c.

The crescent is sometimes montant, i. e. its points look towards the top of the chief, which is its most ordinary representation; whence some contend, that the crescent, absolutely so called, implies that situation; though other authors blazon it montant, when the horns are towards the dexter side of the escutcheon, in which position others call it *incroissant*.

Crescents are said to be *adossed*, when their backs or thickest parts are turned towards each other; their points looking to the sides of the shield. *Crescent inverted*, is that whose points look towards the bottom; *turned crescents*, are placed like those adossed; the difference is, that all their points look to the dexter-side of the shield: *conturned crescents*, on the contrary, look to the sinister side: *affronted* or *appointed crescents*, are contrary to the adossed, the points looking towards each other.

CRESCENT is also the name of a military order, instituted by Renatus of Anjou, King of Sicily, &c. in 1448; so called from the badge or symbol thereof; a crescent of gold enamelled. What gave occasion to this establishment was, that Renatus took for his device a crescent, with the word *loz*, "praise," which, in

3 X

the

Crependia

Crescent

Crescentia, the style of rebus, makes *loz in crescent*, q. d. by advancing in virtue, one merits praise.

*Crescim-
beni.*

CRESCENTIA, the CALABASH TREE: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 25th order, *Putamineae*. The calyx is bipartite and equal; the corolla gibbous; the berry pedicellated or stalked, unilocular, and polyspermous; the seeds bilocular. There are two species.

1. The *cujete*, with oblong narrow leaves and a large oval fruit, is a native of Jamaica and the Leeward Islands. It hath a thick trunk covered with a whitish bark, which rises from 20 to 30 feet high, and at the top divides into many branches, forming a large and regular head, garnished with leaves, which come out irregularly, sometimes single; at other times many arise out of the same knot: the flowers are produced from the sides of the large branches, and sometimes from the trunk, standing upon long footstalks. They have but one petal, which is irregular; and they are of a greenish yellow colour, striped and spotted with brown. These are succeeded by very large fruit, generally spherical, sometimes oval; and at other times they have a contracted neck like a bottle; and are so large, that when the pulp and seeds are cleaned out, the shells will contain three pints or two quarts of liquid. The fruit is covered externally with a thin skin of a greenish-yellow colour when ripe. When this is peeled off, there appears a hard ligneous shell, inclosing a pale yellowish soft pulp of a tart unfavourable flavour, surrounding a great number of flat heart-shaped seeds. 2. The *latifolia*, or broad-leaved calabash, seldom rises more than 15 or 20 feet high, with an upright trunk, covered with a white smooth bark, sending out many lateral branches at the top, garnished with leaves three inches in length, and one and a quarter broad, ranged alternately. The flowers come out as in the former species; but are smaller, and of a deeper yellow colour. The fruit of this sort is sometimes round, sometimes oval, but of very unequal sizes. Both these species are easily propagated by seeds; but the plants are too tender to live in this country, unless they are constantly kept in a stove.

The shells of calabashes are made use of for various purposes. At Barbadoes, besides drinking-cups and punch-bowls, there are made of them spoons, dishes, and other utensils for the slaves. Some of these shells are so large, as to be capable of holding 15 pints of water. The pulp is seldom eaten, except by cattle in the time of drought. The wood, which is hard and smooth, is made into stools, chairs and other furniture.

CRESCIMBENI (John Maria), an Italian, was born at Macerata in Ancona, 1663. His talents for poetry and eloquence developed themselves early. His verses at first had too much pomp and point; but residing in Rome, and reading the best Italian poets, brought him back to nature. He not only reformed himself, but undertook to reform bad taste in general. From this motive he projected the establishment of a new academy, under the name of *Arcadia*; the members of which at first did not exceed 14, but afterwards increased much. They called themselves the shepherds of Arcadia, and each took the name of some shepherd and some place in that ancient kingdom. The founder of this society was appointed the director of it in 1690, and held this honourable post 38 years;

namely, to the year of his death, which happened in 1728. Among a great number of works, in verse and prose, the principal is, *An History of the Italian Poetry*, very much esteemed, and reprinted, 1731, at Venice, in six volumes 4to. This history is accompanied with a commentary, containing anecdotes of Italian poets. He published also *An History of the Academy of Arcadia*, together with the *Lives of the most illustrious Arcadians*; and many other works.

CRESCY, or **CRESSY**. See **CRESSY**.

CRESS, **WATER CRESS**, or **CRESSES**, in botany. See **SISYMBRIUM**.

Indian Cress. See **TROPEOLUM**.

CRESSY, a port-town of Picardy in France, about 44 miles south of Calais, and 27 north-west of Abbeville, remarkable on account of the victory obtained there over the French by Edward III. of England, in the year 1346. E. Long. 2. 0. N. Lat. 50. 20.

Edward having encountered and overcome many difficulties in his expedition, was at last so closely followed and harassed by the French army, commanded by the King of France in person, that he determined to make a stand at this place, and to give his pursuers a check. For this purpose he chose his ground with great judgment, on the gentle declivity of a hill, with a thick wood in his rear. He ordered deep entrenchments to be made on each flank, and waited with firmness the approach of his enemies. The King of France, dreading nothing so much as the escape of the English, began the march of his great army from Abbeville early in the morning, August 26. and continued it several hours with great eagerness, till he received intelligence that the English had halted at Cressy, and were prepared to give him battle. He was advised at the same time not to engage that day, when his troops were much fatigued with their march, and in great disorder; and he was disposed to have taken this advice. But the discipline of these times was so imperfect, that the orders given for halting were not obeyed; and one corps of this mighty host impelling another, they continued advancing till they came into the presence of their enemies in much confusion.

Edward had employed the forenoon of this important day in drawing up his army in the most excellent order, in three lines. The first line, which consisted of 800 men at arms, 4000 English archers, and 600 Welsh foot, was commanded by his young, amiable, and heroic son, the Prince of Wales, assisted by the Earls of Warwick and Oxford, and several other noblemen. The second line, composed of 800 men at arms, 4000 halbardiers, and 2400 archers, was led by the Earls of Arundel and Northampton; the last line or body of reserve, in which were 700 men at arms, 5300 billmen, and 6000 archers, was ranged along the summit of the hill, and conducted by the King in person, attended by the Lords Moubray, Mortimer, and others. When the army was completely formed, Edward rode along the lines, and by his words and looks inspired his troops with the most ardent courage and strongest hopes of victory. He then commanded the cavalry to dismount, and the whole army to sit down upon the grass, in their ranks, and refresh themselves with meat, drink, and rest. As soon as the French army came in view, they sprung from the ground, full of strength and spirit, and stood ready to receive them.

The King of France, assisted by the Kings of Bohemia

*Crescy
||
Cressy.*

*Henry's
History,
Vol. IV.
p. 178.*

Cressy. hemia and Majorca, the Dukes of Lorraine and Savoy, and several other sovereign princes, with the flower of the French nobility, laboured to restore some degree of order to his prodigious army, and drew it up also in three lines, but very indistinctly formed. The first line was commanded in chief by the King of Bohemia; the second by the Earl of Alençon, the King of France's brother; and the third by Philip in person; and each of these lines contained a greater number of troops than the whole English army.

The battle of Cressy was begun about three o'clock in the afternoon, August 26. by a great body of Genoese cross-bowmen, in the French service, who let fly their quarrels at too great a distance to do any execution, and were presently routed by a shower of arrows from the English archers. The Earl of Alençon, after trampling to death many of the flying Genoese, advanced to the charge, and made a furious attack on that corps commanded by the Prince of Wales. The Earls of Arundel and Northampton advanced with the second line to sustain the Prince, and Alençon was supported by as many troops as could crowd to his assistance. Here the battle raged for some time with uncommon fury; and the Earl of Warwick, anxious for the fate of the day and the safety of the Prince, sent a messenger to the King, intreating him to advance with the third line. Edward, who had taken his stand on a wind-mill on the top of the hill, from whence he had a full view of both armies, asked the messenger, if his son was unhorsed, or wounded, or killed? and being answered, that the Prince was unhurt, and performed prodigies of valour, "Go then," said he, "and tell my son and his brave companions, that I will not deprive them of any part of the glory of their victory." This flattering message being made known, inspired the Prince and his troops with redoubled ardour; and the King of Bohemia, the Earl of Alençon, and many other great men, being slain, the whole first and second lines of the French army were put to flight. Philip, undismayed at the slaughter of his troops, and the fall of so many princes, advanced to the charge with the line under his immediate command. But this body soon shared the same fate with the other two; and Philip, after having been unhorsed, and wounded in the neck and thigh, was carried off the field by John de Hainault, and fled with no more than five knights and about 60 soldiers in his company, of all his mighty army, which at the beginning of the battle consisted of more than 120,000 men. Such was the famous victory of Cressy, the greatest ever gained by any King of England. After the battle, the King flew into the arms of the Prince of Wales, and grasping him to his bosom, cried in an ecstasy of joy, "My dear son, you have this day showed yourself worthy of the knight-hood which you lately received, and of the crown for which you have so bravely fought; persevere in your honourable course." The Prince, as modest as he was brave, sunk down on his knees, his face covered with blushes, and begged his father's blessing. Edward continued with his army at Cressy three days, employed in numbering and burying the dead. The French had left on this bloody scene the King of Bohemia, 11 other princes, 80 bannerets, 1200 knights, 1500 gentlemen, 4000 men of arms, and 30,000 other soldiers.

CREST, in armoury, denotes the uppermost part of an armoury; or that part rising over the cask or helmet.—Next to the mantle, says Guillim, the crest or cognizance claims the highest place, being seated on the most eminent part of the helmet; yet so as to admit an interpolation of some escrol, wreath, chapeau, crown, &c.

The ancient warriors wore crests to strike terror in their enemies, as the sight of the spoils of animals they had killed; or to give them the more formidable mien, by making them appear taller, &c.

In the ancient tournaments, the cavaliers had plumes of feathers, especially those of ostriches and herons, for their crests; these tufts they called *plumarts*; and were placed in tubes, on the tops of high caps or bonnets. Some had their crests of leather; others of parchment, pasteboard, &c. painted or varnished, to keep out the weather; others of steel, wood, &c. on which were sometimes represented a member or ordinary of the coat; as, an eagle, fleur de lys, &c. but never any of those called *honourable ordinaries*, as pale, fesse, &c. The crests were changeable at pleasure; being reputed no other than as an arbitrary device or ornament.

Herodotus attributes the rise of crests to the Carians, who first bore feathers on their casks, and painted figures on their bucklers; whence the Persians called them *cocks*.

The crest is esteemed a greater mark of nobility than the armoury, as being borne at tournaments; to which none were admitted till they had given proof of their nobility. Sometimes it serves to distinguish the several branches of a family. It has also served, on occasion, as the distinguishing badge of factions. Sometimes the crest is taken from the device; but more usually it is formed of some piece of the arms: thus, the emperor's crest is an eagle; that of Castile, a castle, &c. Families that exchange arms, as the houses of Brunswick and Cologne have done, do not change their crests; the first still retain the horse, and the latter the mermaid.

CREST, in heraldry, the figure placed above the helmet in an achievement. See **HERALDRY**.

CREST fallen, a fault of an horse, when the upper part of his neck, called the *crest*, hangs to one side: this they cure by placing it upright, clipping away the spare skin, and applying plasters to keep it in a proper position.

CRETA, or **CHALK**, in natural history. See **CHALK**.

CRETE, one of the largest islands in the Mediterranean, lying between 22 and 27 degrees of east longitude, and between 35 and 36 degrees of north latitude. According to Strabo, this island is 287 miles in length; and according to Pliny, 270; and according to Scylax, 312. As to its breadth, it is not, as Pliny observes, above 55 miles where widest; whence it was styled, as Stephanus observes, the *Long Island*. It has the Archipelago to the north, the African sea to the south, the Carpathian sea to the east, and the Ionian to the west. Anciently it was known by the names of *Aeria*, *Chthonia*, *Idea*, *Curete*, *Macaris*, &c. but its most common name was that of *Crete*.

The Cretan mythologists, quoted by Diodorus Siculus, relate that the first inhabitants of the island were the Dactyli Idæi, who dwelt around mount Ida; they

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they were regarded as magicians, because they possessed a variety of knowledge, and were particularly skilled in religious mysteries. Orpheus, who distinguished himself so highly in poetry and music, was their disciple. They discovered the use of fire, iron, and brass, and invented the art of working these metals in Berynthius, a mountain near Aptera. Those invaluable discoveries procured them divine honours. One of them, named Hercules, rendered himself famous by his courage and great exploits. He instituted the Olympic games: though posterity, by a mistake arising from his bearing the same name, have ascribed that institution to the son of Alcmena; who, indeed, trode in the steps of his predecessor, and raised himself also to immortality.

The Dactyli Idæi were the ancestors of the Curetes. These last, at first inhabited the forests and caves of the mountains. Afterwards they entered into domestic life, and contributed, by their institutions, to the civilization of mankind. They taught men to collect flocks of sheep, to tame the ferocity of wild animals for domestic purposes, and to invite bees into hives, that they might rifle them of the fruit of their labours. They first prompted men to the chase, and taught the use of the bow. They were the inventors of swords and of military dances. The noise which they made, by dancing in armour, hindered Saturn from hearing the cries of Jupiter, whose education Rhea had entrusted to them. With the assistance of the nymphs, they brought up that god in a cave in mount Ida, feeding him with the milk of the goat Amalthea, and with honey.

To this period mythology assigns the origin of the Titans; their abode near Gnossus, where stood the palace of Rhea; their travels over the whole earth; their war against Ammon, and his defence by Bacchus; the nuptials of Jupiter and Juno, celebrated nigh the river Therenus in Crete; the gods, goddesses, and heroes, who descended from them.

The most illustrious of those heroes were Minos and Rhadamanthus. They are said to have been the sons of Jupiter and Europa, who was conveyed into the island on a bull. Minos becoming king, built several cities; the most considerable of which are—Gnossus, on that side of the island which faces Asia, Phœsus on the southern shore, and Cydon on the western, facing Peloponnesus. He gave to his subjects a code of admirable laws, which he pretended to have received from his father Jupiter in the grotto of mount Ida.

Rhadamanthus distinguished himself by the impartiality of his judgments, and by the inflexible severity with which he inflicted punishment on the impious and wicked. His empire extended over the chief isles of the Archipelago, and the inhabitants of the adjacent coasts of Asia submitted to him on account of his high reputation for probity and justice. Mythologists have constituted him judge in the regions below, to determine the future state of the righteous and the wicked. They have conferred on him the same honours which were bestowed on Minos, the justest of kings.

Thus far have been followed the Cretan traditions as they are related by Diodorus; but historians differ about the truth of them. There are a variety of opinions concerning the first inhabitants of Crete. Stra-

bo, who has discussed them with great erudition, says, after several pages on the subject; "I am not fond of fables; yet I have detailed these at some length, because they are connected with theology. Every discourse concerning the gods should examine the religious opinions of antiquity, and distinguish them from fable. The ancients were pleased to conceal their knowledge of nature under a veil. It is now impossible to unfold the meaning of their enigmas. But by exposing to light the numerous allegories which they have left us, and by examining attentively their mutual relations and differences, genius may perhaps be able to unfold the truths which are couched under them."

But leaving mythology for the more certain records and monuments of history, we find that Crete received its name from Crés, the first of its monarchs. He was author of several useful inventions, which contributed to the happiness of his subjects. Prompted by gratitude, they endeavoured to perpetuate the memory of his favours, and to immortalize his name, by naming the island after him.

In order to distinguish the true Cretans from strangers, they were named *Eteocretes*. A number of colonies, from different parts of Greece, settled in the island. The agreeableness of the climate, and the fertility of the soil, invited them to fix their habitation there. The Lacedæmonians, Argives, and Athenians, were the principal people who sent colonies into Crete. This is what makes Homer say, "Crete is an extensive island in the midst of the stormy main. The soil is rich and fertile. It contains an immense number of inhabitants. It is adorned with an hundred cities. Its inhabitants speak in various languages. We find there Achæans, valiant Eteocretes, Cydonians, Dorians, and godlike Pelasgians." The Eteocretes inhabited the southern division of the island; they built there the city of Præsus, and erected a temple to Diæan Jove.

Crés was not the only monarch who reigned in the island of Crete. He had a series of successors. But history affords little information concerning them: only the names of a few of them are preserved, and a small number of events which happened under the reign of some others,—but blended and disfigured with an intermixture of fable. Among those monarchs we find two Jupiters, and two of the name of Minos. However, most writers confound them, and ascribe to one those transactions and exploits which should be shared between the two.

This remark chiefly regards Minos, who was esteemed the wisest legislator of antiquity. The office assigned him in the regions below, is a clear and certain proof of his having gained an exalted reputation by his justice. Greece, says Plato, has with great propriety adopted the laws of Crete; for they are founded on the solid basis of reason and equity, and have a natural tendency to render the people, who live in subjection to them, opulent and happy. One of those laws forbade "the Cretans ever to carry their festivity so far as to intoxicate themselves with wine."

The following was very suitable to repress the presumptuous ardour of youth, "Let young people not canvass the laws with an indiscreet curiosity; let them not examine whether the lawgiver has done right or wrong in promulgating them; but let them join unanimously

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Crete. nimously in declaring them good, since they proceed from the gods. If any of the old men perceive something in them meriting amendment, let him mention it to the magistrate, or discuss it with his equals, but never in the presence of the young people." That excellent code was engraven on tables of brass; and Talos, chief minister to Minos, visited all the towns and cities in the island, three times a-year, to observe in what manner the laws were executed and obeyed. The king of Crete, well knowing that the marvellous is necessary to command the belief and enforce the obedience of the people, pretended that he had received those laws from his father Jupiter, in the grotto of mount Ida. In the same manner, Lycurgus, before promulgating his laws, repaired to Delphos, and gave out they had received the sanction of Apollo. A like reason induced Numa to pretend to an intimacy with the nymph Egeria, and Mahomet to ascribe his doctrines and institutions to the revelation of the angel Gabriel.

In contradiction to this account, others of the ancients describe Minos as a prince impotently abandoned to the fury of his passions, and a barbarous conqueror. Falling passionately in love with the nymph Dictynna, who refused to gratify his wishes, he pursued her to the brink of the shore, and forced her to plunge into the sea, where she was saved by some fishermen, who received her in their nets. He was the first of the Greeks who appeared in the Mediterranean at the head of a naval armament. He conquered the Cyclades, expelled the Carians, established Cretan colonies in those islands, and committed the government of them to his son.

Being informed, while he was at Paros, that his son Androgeus was slain at Athens, he declared war against Egeus, and imposed on him a disgraceful tribute; from the payment of which Theseus delivered his country. He took arms against Nisus, king of Megara, made him prisoner by the treachery of his daughter Scylla, and put him to death, together with Megarus, the son of Hippomanes, who had brought some forces to his assistance. Dædalus, who had by some means incurred his displeasure, despairing of pardon from so severe and inflexible a prince, employed the resources of his inventive genius, in order to escape from his power. He fled to Sicily, gained the protection of king Cocalus, and obtained an asylum in his court. Valerius Flaccus has described his flight in a very lively and picturesque manner. "Thus Dædalus, with the wings of a bird, ascended from mount Ida. Beside him flew the comrade of his flight, with shorter wings. They appeared like a cloud rising in the air. Minos, seeing his vengeance thus eluded, glowed with impotent rage. In vain he followed with his eyes the secure flight of his enemies through the wide expanse of heaven. His guards returned to Gortynia with their quivers filled with arrows." The Cretan monarch did not, however, give up his prey. He equipped a fleet, pursued the fugitive to Sicily, and fell before the walls of Camicum.

It is plain, that those actions cannot agree to the character of that just monarch, whose merits raised him to the office of determining, in the regions below, the unalterable fate of the righteous and the wicked. We may, therefore, reasonably conclude,

that Minos the legislator is a different person from the conqueror; that it was the former who gained a lasting reputation by his wisdom and justice; and the latter who subdued most of the islands of the Archipelago, but being enslaved by his passions, tarnished his glory by his cruelty and merciless thirst for vengeance.

The last king of Crete was Idomeneus. This prince, accompanied by Merion, conducted 24 ships to the assistance of Agamemnon. Homer informs us of the illustrious exploits by which he signalized himself before the walls of Troy. At his departure, he committed the government of his kingdom to Leucus his adopted son, promising him the hand of his daughter Clisithera if he governed wisely in his absence. That ambitious young man soon forgot the favours which had been so lavishly bestowed on him. Gaining a number of partisans, he in a short time aspired to the immediate possession of the crown. His impatience would not wait till he should obtain it lawfully by marriage. Flattering himself, from the long absence of the king, that he was perhaps fallen before Troy, he determined to mount the throne. Mida, wife to Idomeneus, and the princess Clisithera, were an obstacle to his wishes. But ambition knows no restraint, and tramples under foot the most sacred obligations. The base wretch having seduced the people from their allegiance, and captivated the affections of the nobles, sacrificed those unfortunate victims in the temple. When Idomeneus, crowned with laurels, landed on the coast of Crete, Leucus, who had now firmly established his power, attacked him with an armed force, and obliged him to re embark. A different account is also given of the banishment of Idomeneus. Servius says, that he had vowed, in a storm, to sacrifice to the gods the first person that his eyes should behold on the Cretan shore; that his son having met him first after his arrival, he fulfilled his vow, by sacrificing him; and that the island, being soon after depopulated by pestilence, the inhabitants looked upon that affliction as the effect of divine vengeance, and expelled the parricide; who, retiring to Italy, founded Salernum, on the Messapian coast. But that opinion appears entirely groundless. History mentions no son of Idomeneus. If he had a son of his own blood, why did he adopt Leucus? Why did he intrust to him the government of the island, when he promised him his daughter in marriage? The more probable opinion is, that the plague was introduced into the island by his ships, when he returned from the siege of Troy, as Herodotus asserts; and that Leucus artfully made use of that pretext to expel his lawful sovereign from the island. But it appears that the usurper did not long enjoy the fruit of his crimes. Soon after the departure of Idomeneus, monarchy was abolished, and the government of Crete became republican.

The republic of Crete has been celebrated by the panegyric of Plato, served Lycurgus as a model for that which he established in Lacedæmon, and was beheld by all Greece with respect and admiration. Strabo has thought it not unworthy of his pencil, and has consecrated the leading features of its constitution to lasting fame in his immortal work. It was indeed a system of legislature, whose direct tendency was to call forth the buds of virtue in the heart of infancy; to
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open and expand them in youth; to inspire man, as he reached maturity, with the love of his country, of glory, and of liberty; and to comfort and support the infirmities of age with the respect and esteem due to the experience and wisdom of that period of life. It laboured to form affectionate friends, patriotic citizens, and worthy magistrates. It made no use, however, of a multitude of acts and statutes to produce those inestimable advantages. They flowed all from one source; the public education of youth, judiciously directed. The virtuous examples set before youth in the course of that education, the illustrious deeds which were recited to them with high applause, the honours conferred on valour and on noble actions, the opprobrium invariably cast on vice; these were the only means which the Cretan lawgiver made use of to form a warlike, humane, and virtuous nation.

The Cretan government, soon after the expulsion of Idomeneus, became aristocratical. The power was divided between the nobles and the people. Yet as the chief employments were occupied by the nobles, they directed the administration of affairs. Ten magistrates were annually elected, by a majority of voices, in the national assembly. These were named *Cosmoi*, and their public office and character were the same with those of the Ephori at Sparta. They were the generals of the republic in time of war, and directed all affairs of any importance. They had the right of choosing certain old men for counsellors. Those old men, to the number of twenty-eight, composed the Cretan senate. They were chosen from among such as had discharged the office of *Cosmoi*, or had distinguished themselves by extraordinary merit and blameless probity. Those senators continued in office during life, possessed a weighty influence, and were consulted in every affair of any importance. This body was a barrier opposed by the wisdom of the legislator against the ambition of the ten chief rulers. He had imposed another restraint on their power, by limiting the period of their administration to one year. His foresight went still farther. The suffrages of the people might be obtained by bribery or personal influence, and of consequence their choice might sometimes fall on a man unworthy of so honourable an office. When that happened, he who had been undeservedly advanced to the dignity of *Cosmos* was degraded, either in a national assembly, or simply by the voices of his colleagues. This, doubtless, is what Plato alludes to, when he says, "Neither the commonwealth, which approaches too near to a monarchical constitution, nor that which affects a licentious liberty, is founded on the solid basis of a just medium between anarchy and despotism. O Cretans! O Lacedemonians! by establishing yours on firmer foundations, you have avoided those fatal extremes."

Such were the distribution of power and the administration of public affairs in the Cretan government. Its simplicity was admirable. A people who were blessed with the sacred enjoyment of liberty, but possessed not sufficient knowledge and discernment to direct themselves, elected magistrates, to whom they delegated their authority. Those magistrates, thus arrayed with sovereign power, chose senators to assist and direct their deliberations. These counsellors

could neither exact or decide of themselves: but they held their office for life; and that circumstance contributed to strengthen their influence and to increase their experience. The magistrates were animated by the most powerful motives to distinguish themselves when in office, by unwearied activity in the public service. On one side, they were restrained by the fear of degradation; on the other, actuated by the hope of becoming one day members of the national council.

Yet let us enquire what means the Cretan lawgiver used to form virtuous citizens. All the Cretans were subjected to the power of their magistrates; and divided into two classes, the adults and the youth. Men arrived at maturity were admitted into the first. The second consisted of all the young men who were not below the age of seventeen. The society of adults eat together in public halls. There rulers, magistrates, poor and rich, seated together, partook, without distinction, of the same simple fare. A large bowl, filled with wine and water, which went round the company from one to another, was the only drink that they were allowed. None but the old men had a right to call for more wine. Doubtless, that people, so celebrated for wisdom, were not strangers to the power of beauty; for a woman was appointed to preside at each table. She openly distributed the most exquisite meats to those who had distinguished themselves by their valour or wisdom. That judicious preference was so far from exciting envy or jealousy, that it only prompted every person to deserve it by brave and prudent conduct. Near where the citizens sat, two tables were laid, which they named *Hospitable*; all strangers and travellers were entertained at these: and there was also a particular house set apart by the public, in which they might spend the night.

To supply the public expences, every citizen was obliged to bring a tenth part of his annual income into the treasury. The chief magistrates were to take care that every person contributed his proportion. In Crete, says Aristotle, one part of the fruits of the earth, of the produce of the flocks, of the revenues of the state, and of the taxes and customs, is sacred to the gods: the other is distributed among the members of the community; so that men, women, and children, all subsist at the public expence.

After dinner, the magistrates and senators usually spent some time in deliberating on the affairs of the state; they next recounted the noble deeds which had been done in war, celebrated the courage of their most distinguished warriors, and animated the youth to heroic valour. Those assemblies were the first school of the youth. At the age of seven, the boy was permitted to handle the bow;—from that time he was admitted into the society of the adults, where he continued till the age of seventeen. There, sitting on the ground, and clothed in a plain and coarse dress, he served the old men, and listened, with respectful silence, to their advices. His young heart was inflamed with the recital of noble deeds in arms, and glowed with ardour to imitate them. He acquired habits of sobriety and temperance. And being constantly witness of illustrious examples of moderation, wisdom, and patriotism; the seeds of virtue were thus sown

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Crete. sown and fostered in his heart before he attained the use of reason.

He was early accustomed to arms and to fatigue, that he might learn to endure excessive heat or cold, to clamber and leap among hills and precipices, and to bear manfully the blows and wounds which he might receive amid the gymnastic exercises or in battle. His education was not confined to the gymnastic exercises; he was also taught to sing the laws, which were written in verse, with a certain species of melody; in order that the charms of music might dispose him to learn them with more pleasure, and might impress them more deeply on his heart, and that, if he should ever transgress them, he might not have the excuse of ignorance to offer. He next learned hymns in honour of the gods, and poems composed in praise of heroes. When he reached his seventeenth year, he retired from the society of the adults, and became a member of that of the young men.

Here his education was still carried on. He exercised himself in hunting, wrestling, and fighting with his companions. The lyre played tunes of martial music; and he learned to follow exactly the sounds and measure of the musician. Those sports and exercises were sometimes attended with danger; because arms of steel were sometimes used in them. One dance, in which the youth aspired most ardently to excel, was the Pyrrhic, originally invented in Crete. The performers in that dance were arrayed in complete armour:—they wore a light short coat, which did not fall below the knee, and was bound with a girdle going twice round the waist: on their feet and legs were buskins; above these they bore their arms, —and performed various military evolutions to the sound of musical instruments. “The Lacedemonians and Cretans,” (says Libanius), “cultivated dancing with amazing ardour; they considered, that their laws had directed them to practise it for the most important purposes; and it was scarce less dishonourable for a Lacedemonian or Cretan to neglect the military dances, than to desert his post in battle.”

Those Cretans who were opulent and high-born, were permitted to form societies of young men of their own age. They often strove, with emulation, who should form the most numerous ones. The father of the young man who formed one of those societies, usually presided in it. He had a right to educate those warlike youth, to exercise them in running and in hunting, to confer rewards and inflict punishments.

Friendship was in high estimation among the Cretans; but, says Strabo, the manner in which they conducted the intercourse of friendship was pretty extraordinary. Instead of mild persuasion, they made use of violence, to gain the objects of their affections. He who conceived an affection for a young man of his own age, and wished to attach him to himself by indissoluble bonds, formed a scheme for carrying him off by violence. Three days before putting it into execution, he communicated it to his comrades. They could not then interfere to prevent it; because if they had, they would have appeared to think the young man unworthy of such an excessive attachment. At the appointed day they assembled to protect their companion. If the ravisher appeared to them not unworthy of the object of his affection, they made, at first, a faint resistance in obedience to the law—but,

at last, joyfully favoured his enterprise; if, on the other hand, they thought him unworthy of the object of his choice, they made such resistance as to prevent him from executing his design. The feigned resistance continued till the ravisher had conducted his friend into the hall of that society to which he belonged. They did not regard him who possessed superior beauty and gracefulness of person as the most amiable; but him who had most distinguished himself by his modesty and valour.

The ravisher loaded his young friend with favours, and conducted him wherever he desired; they were accompanied by those who had favoured the rape: he carried him from feast to feast, procured him the pleasures of the chase and good cheer; and after using all possible means to gain his heart for the course of two months, brought him back to the city, and was obliged to give him up to his parents. But first he presented him with a suit of armour, an ox, and a drinking-cup; which were the usual and legal presents on such occasions. Sometimes his generosity went still farther; and he made more expensive presents; to defray the expence of which his comrades contributed. The young man sacrificed the ox to Jupiter, and gave an entertainment to those who had assisted when he was carried off. He then declared his sentiments concerning a connection with his ravisher, and told whether or not it was agreeable to him. If he had reason to complain of the treatment which he had received, the law allowed him to forsake a friend so unworthy of the name, and to demand his punishment.

It would have been disgraceful, adds Strabo, to a young man, who was handsome and well-born, to be rejected by his friends on account of the depravity of his manners. Those who had been carried off received public honours. Theirs were the first places in the halls and at the race. They were permitted to wear, during the rest of life, those ornaments which they owed to the tenderness of friendship; and that mark of distinction testified to all who saw them, that they had been the objects of some fond attachment.

When the youth had finished their exercises, and attained the legal age, they became members of the class of adults; being then considered as men, they were permitted to vote in the national assemblies, and were intitled to stand candidates for any public office. They were then obliged to marry; but did not take home their wives till such time as they were capable of managing their domestic concerns.

“The legislator (says Strabo) had considered liberty as the greatest blessing that cities can enjoy. Liberty alone can secure the property of the citizens of any state. Slavery either robs them of it, or renders it precarious. The first care of nations should therefore be to preserve their liberty. Concord strengthens and supports her empire; she flourishes wherever the seeds of dissention are extinguished. Almost all those hostilities which prevail among nations or individuals spring either from an inordinate desire of wealth or the love of luxury. Introduce, instead of those baneful principles, frugality, moderation, and equality of conditions; you will thus banish envy, hatred, injustice, and haughty disdain.” This was what the Cretan lawgiver happily effected. And the community, which was regulated by his wise institutions, rose to glory, opulence, and power; and was honoured.

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nourished with the panegyrics of the most celebrated philosophers of Greece; but the highest honour it ever obtained, was that of serving Lycurgus as a model for the admirable form of government which he established at Sparta.

The republic of Crete continued to flourish till the age of Julius Cæsar. No other state has enjoyed so long a period of strength and grandeur. The legislature, regarding liberty as the only sure basis of a nation's happiness, had instituted a system of laws, the natural tendency of which was, to inspire men with an ardent passion for liberty, and with such virtue and valour as are necessary to support and defend it. All the citizens were soldiers; all of them were skilled in the art of war. The valiant youth of other nations resorted to Crete, to learn the exercises, manœuvres, and evolutions, of the military art. "Philopœmen (says Plutarch) being impatient of indolence, and eager to acquire skill in arms, embarked for Crete. After spending a considerable time in the noblest exercises among that brave people, who were skilled in the art of war, and accustomed to an austere and temperate life, he returned to the Achæans. The knowledge which he had acquired made him so eminent among them, that he was immediately appointed general of their cavalry."

On the other hand, the legislator, being persuaded that conquests are generally unjust and criminal, that they often exhaust the strength of the victorious nation, and almost always corrupt its manners, endeavoured to preserve the Cretans from the ambition of conquest. The fertility of the island abundantly supplied their wants. They needed not that commerce should introduce among them the riches of foreign countries, along with which luxury and her train of attendant vices would also be introduced; and he knew how to inspire them with an indifference for such acquisitions without expressly forbidding them. The gymnastic exercises, which occupied the leisure of the gallant youths; the pleasures of the chase; the ardour of friendship; the public shows, at which all the different orders of the community, both men and women, used to assemble; the love of equality, order, and their country, with which he inflamed every breast; the wise institutions, which united a whole nation so closely that they composed but one family;—all these ties attached the Cretans to their native island: and finding at home that happiness which was the object of their wishes, they never thought of wandering abroad in search of an imaginary glory, or of extending their empire over other nations. Therefore, from the period at which that state assumed a republican form till the time when they were attacked by the arms of Rome, the nation was not once known to send an hostile force into the territories of any of their neighbours. This instance of moderation is unparalleled in history; no other nation can divide the glory of it with the Cretans. Individuals indeed might leave their country to engage in foreign armies. Those princes and states who knew their valour and skill in archery eagerly sought to take them into their pay; all the neighbouring monarchs were desirous of having in their armies a body of Cretan archers. Over the whole world none were more celebrated than they for bending the bow. "The arrows of Gortynia (says

Claudian), aimed from a trusty bow, are sure to wound, nor ever miss the destined mark."

Crete.

Though the multitude of independent cities which flourished in Crete did not unite their arms to subjugate the neighbouring islands, and drench them with the blood of their inhabitants; yet they were not so wise as to live in peace among themselves. Discord often stalked among them with her flaming torch. The most powerful wished to enslave the rest. Sometimes Gnosus and Gortynia marched with social banners against their neighbours, levelled their fortresses, and subjected them to their power; at other times they attacked each other with hostile violence, and saw their bravest youth perish amid the horrors of civil war. Lyctos and Cydon opposed an invincible barrier to their ambition, and preserved their own liberty. The last of these cities had acquired such strength and influence, that she held the balance between the rival powers of the island. Those wars destroyed a number of the cities, and drenched the native country of Jupiter with blood.

To what source must we attribute those intestine dissensions? One part of the island was occupied by the Eteocretes, the original inhabitants; the rest was peopled with colonies from Athens, Sparta, Argos, and Samos. Perhaps the ancient grudges which had subsisted among those strangers, being still unextinguished in their breasts, were easily rekindled by accident or circumstances, and inflamed with new fury. We may also suppose, that the most powerful among them, exulting in their superiority, would endeavour to take advantage of the weakness of the rest, and disregard all laws but those of force; besides, the glowing ardour of the youth, trained to military exercises, was ever ready to fly to arms. Such, probably, were the causes which fomented discord and hostility among a people living under the same religion, customs, and laws. Whatever these might be, the Cretans being persuaded that the firm union of their soldiers was essential to victory, arrayed the bravest youths of the army in splendid robes, and caused them to sacrifice to friendship before engaging in battle. In some countries it would be very proper to oblige the generals, on such occasions, to sacrifice to concord. If such a sacrifice were performed with sincerity, it might preserve their glory unstained, and prevent such deluges of blood from being wasted without producing any advantages to the state.

Their passion for war did not extinguish in the breasts of the Cretans that exquisite sensibility which is the mother and nurse of the fine arts. "The Cretans (says Sozomen) gave an illustrious proof of their munificence to genius, by making Homer a present of a thousand pieces of silver; and to perpetuate the memory of this act of generosity, they recorded it by an inscription on a public column." In Crete, adds Ptolemy, men are still more desirous of cultivating their understandings than of exercising their bodily powers. Often when dissensions arose, the voice of wisdom and the charms of poetry recalled them to reason and harmony. Thales of Gortynia, the preceptor of Lycurgus, was one of their most celebrated philosophers. Being both a poet and legislator, he made an happy use of his abilities and knowledge to extinguish among his countrymen the kindling sparks of discord. "His poems were moral discourses in verse, which recalled the

Crete.

the people to concord and submission to the laws. U sing a regular measure, he recommended the austerity of his subject by the insinuating and powerful charm of sentiment. So powerful were the effects of his verses, which addressed at once the ears, the heart, and the understanding of his hearers, that their rage was gradually softened. Next, opening their hearts to the love of peace, the advantages which he described in glowing colours, they forgot their intestine dissensions, and ranged themselves around the standard of concord." That sage is said to have invented tunes for the military dances and for the Cretan Pyrrhic. Men who felt so strongly the influence of poetry and music could scarcely be enemies to pleasure. Accordingly they had a custom of distinguishing their fortunate days with white flint stones, their unfortunate days with black. At the end of the year they counted the number of their white stones, and reckoned that they had lived only so many days as were distinguished for having been fortunate. They did not think mere existence, without the enjoyment of pleasure, worthy of the name of *life*. For this reason, they caused to be inscribed on their tombs: "He lived so many days; he continued in existence so long."

A passion for glory is easily awaked in a feeling and generous breast. The Cretans eagerly repaired to the famous solemnities of Greece, and were often crowned at the Olympic, Nemæan, and Pythian games: others of them were favourites of the muses, and versified the predictions of prophets, or celebrated the glorious deeds of their heroes. Several of them distinguished themselves by historical compositions. At the most ancient games, a prize is said to have been bestowed on the poet who sung the noblest hymn in honour of Apollo: Chrysothemis of Crete sung and gained the prize.

The ravages of time have deprived us of almost all their works; and if Pindar had not preserved the memory of some of their crowns, we should not know even the names of the conquerors who wore them. The temple of Diana at Ephesus, built by the Cretan Ctesipon and his son Metagenes, was not proof against the frantic hand of the incendiary. Those ingenious architects had built it on the principles of the Ionic order: to the costliness of the materials, the elegance of the architecture, the symmetry of the parts, and the majesty and perfection of the whole, they had added solidity and strength, without which the rest must have been of small value. Their names have descended to posterity, but the pillars of that monument which has perpetuated their memory have been dispersed or destroyed. Scarce a vestige remains of that building which was esteemed one of the seven wonders of the world.

Nations are effaced from the earth like the monuments of the power, and after the revolution of several ages we can scarce trace in their posterity any remains of their ancient character. Some of them exist longer, others shorter; but we may almost always calculate the period of their duration by the excellence of their laws, and the fidelity with which they support and obey them. The republic of Crete, being established on a solid basis, knew no foreign master for a period of ten centuries. She bravely repelled the attacks of those princes who attempted to enslave her. At length the time arrived when the warlike and victorious Ro-

mans aspired to the empire of the world, and would suffer none but their subjects or slaves to inhabit within the reach of their arms. Florus does not scruple to acknowledge, that the Romans had no other motives for invading Crete but the ambitious desire of subduing the renowned native country of Jupiter. "If any person wish to know the reasons which induced us to attack Crete (says he), the true reason was our desire to subdue so celebrated an island. The Cretans had appeared to favour Mithridates, and the Romans thought proper to declare war against them on that pretext. Mark Antony, father of the triumvir, attacked them with strong hopes of success; but was severely punished for his presumption and imprudence. The Cretans took a great part of his fleet, hung up his soldiers and sailors on the masts amid the sails and cordage, and returned in triumph into their harbours."

The Romans never forgot nor forgave a defeat. As soon as the Macedonian war was brought to an happy conclusion, they again took arms against the Cretans to revenge their ignominy and loss. Quintus Metellus was sent to Crete with a powerful armament. He met with an obstinate and vigorous resistance. Panarus and Lathenes, two experienced leaders, collecting a body of 20,000 young warriors, all eager for battle, and of determined courage, employed their arms and arrows successfully against the Romans, and protracted the fate of Crete for three years. Those conquerors could not make themselves masters of the island before destroying its bravest warriors. They lost a great number of troops, and bought a bloody victory at the price of many a danger and much fatigue. However, their usual good fortune at length prevailed. The first care of the conqueror was to abolish the laws of Minos, and to establish in their room those of Numa. Strabo, that enlightened philosopher, complains of this act of severity; and informs us, that in his days the original laws of Crete were no longer in force, because the Romans compelled the conquered provinces to adopt their civil code. To secure themselves still more fully in the possession of the island, they sent a powerful colony to Gnosus.

From that era to the present time, that is, for a period of 1900 years, the Cretans have no longer formed a separate nation, nor made any figure among the states and kingdoms of the world: their noble and ingenuous manners, their arts and sciences, their valour and their virtues, are no more. They have lost these with the loss of liberty. So true is it that man is born for himself; and that, when deprived of that aid which Nature has designed to strengthen and support his weakness, the flame of genius and the ardent glow of valour are extinguished in his breast; he becomes incapable of vigorous resolution, and sinks below the natural virtue and dignity of the species.

The island of Crete, joined with the small kingdom of Cyrene, on the Lybian coast, formed a Roman province. It was at first governed by a proconsul; a questor and an assistant were afterwards sent there; at last, as Suetonius informs us, it was put under the government of a consul. This island was one of the first places in the world that were favoured with the light of the gospel. St Paul introduced the Christian faith into Crete; and his disciple Titus, whom he left there

Crete.

Crete
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Creux.

to cherish and cultivate that precious plant, became the first bishop of the island. In the reign of the emperor Leo, it had twelve bishops, who were all subject to the patriarch of Constantinople. Constantine separated Crete from Cyrené in the new division which he made of the provinces of the empire. Leaving three sons, Constantius, Constantine, and Constans, he assigned Thrace and the eastern provinces to the first; to the second, the empire of the West; the island of Crete, Africa, and Illyria, to the third.

When Michael Balbus sat on the throne of Constantinople, the rebellion of Thomas, which lasted three years, caused him to neglect the other parts of the empire. The Agarenians (a people of Arabia), who had conquered the finest provinces of Spain, seized that opportunity. They fitted out a considerable fleet, plundered the Cyclades, attacked the island of Crete, and made themselves masters of it without opposition. In order to secure their conquest, they built a fortress which they named *Khandak*, "intrenchment." From that citadel the barbarians made inroads into the interior parts of the island, carrying havoc and devastation wherever they appeared. By repeated attacks, they subdued all the cities in Crete except Cydon. Michael made some ineffectual efforts to expel them from Crete. The emperor Basilus, the Macedonian, was not more successful. They defeated him in a bloody battle; but being vanquished by one of his generals, they were subjected to the payment of an annual tribute. At the end of ten years, the Arabians refused the tribute. It was reserved for Nicephorus Phocas, who was afterwards emperor, to deliver this fine island from the yoke of the Infidels. He landed on the island with a numerous army, boldly attacked them, and routed them in various engagements. The Saracens, no longer daring to meet so formidable a general in the field, fled for protection to their fortresses. Phocas being plentifully supplied with all the warlike machines necessary for a siege, levelled their walls, and alarmed their hearts with terror. He took their cities and fortresses, and drove them into *Khandak* their metropolis and last resource. In the course of nine months he subdued the whole island, took their king Curup and his lieutenant Aremas prisoners, and reunited to the empire a province which had been 127 years in the hands of the Infidels. It remained under the dominion of the Romans till the time when Baldwin Count of Flanders, being raised to the throne, liberally rewarded the services of Boniface Marquis of Montserrat, by making him king of Thessalonica, and adding the island of Crete to his kingdom. That lord, being more covetous of gold than glory, sold it to the Venetians in the year 1194; under whom it assumed the name of *CANDIA*. See the sequel of its history under that article.

CRETIO, in antiquity, a certain number of days allowed the heir to consider whether he would act as heir to the deceased or not; after which time, if he did not act, he was excluded from the estate.

CREUX, a term in sculpture, much used by the French; though not yet, that we know of, naturalized among us: but the want of a word of equal import in English, as it has frequently put us under a necessity of using this in the course of the present

work; so it pleads strongly for its admission into our language.

Creux originally signifies a *bollow, cavity, or pit*, out of which something has been scooped or dug: hence it is used to denote that kind of sculpture and graving where the lines and figures are cut and formed within the face or plane of the plate or matter engraven on. In which sense it stands opposed to *relievo*; where the lines and figures are embossed, and appear prominent above the face of the matter.

CREW, the company of sailors belonging to a ship, boat, or other vessel.

The sailors that are to work and manage a ship are regulated by the number of lasts it may carry; each last making two ton. The crew of a Dutch ship, from 40 to 50 lasts, is seven sailors and a swabber; from 50 to 60 lasts, the crew consists of eight men and a swabber; and thus increases at the rate of one man for every ten lasts; so that a ship of 100 lasts has 12 men, &c. English and French crews are usually stronger than Dutch; but always in about the same proportion. In a ship of war there are several particular crews, or gangs, as the boatswain's crew, the carpenter's crew, the gunner's crew, &c.

CREVIER (*JOHN BAPTIST LEWIS*), a Parisian, was trained under the celebrated Rollin, and afterwards became professor of rhetoric. Upon the death of his master, in 1741, he took upon him to finish his *Roman History*. He published other works, and was greatly serviceable to the cause of virtue and religion as well as letters. His death happened, 1765, in a very advanced age. Besides the continuation just mentioned, he published, 1. An edition of *Livius, cum Notis*, in 6 vols 4to, 1748; and afterwards another edition, better adapted to the use of his pupils, in 6 vols. small 8vo. 2. *La Histoire des Empereurs de Romains Jusqu'à Constantin*, 1749, 12 tom. 12mo. 3. *Histoire de l'Université de Paris*, 7 tom. 12mo. 4. *Rhetorique Française*, a just and useful work. 5. *Observations sur l'Esprit des Loix*. Here he ventured out of his depth; he should have kept within the precincts of the belles letters.

CREUSA, in fabulous history, daughter of Creon king of Corinth. As she was going to marry Jason, who had divorced Medea, she put on a poisoned garment, which immediately set her body on fire, and she expired in the most excruciating torments. She had received this gown as a gift from Medea, who wished to take that revenge upon the infidelity of Jason. Some call her *Glauce*. (*Ovid. de Art. Am. l. v. 335.*) A daughter of Priam, king of Troy by Hecuba. She married Æneas, by whom she had, among other children, Ascanius. When Troy was taken, she fled in the night with her husband; but they were separated in the midst of the confusion and tumult, and Æneas could not recover her, nor hear where she was. Some say that Cybele saved her, and carried her to her temple, of which she became priestess. *Pauf. 10. c. 26.—Virg. Æn. 2. v. 562.*

CREX, in ornithology, a species of *RALLUS*.

CRIB, the rack or manger of a stable, or the stall or cabin of an ox. It is also used for any small habitation, as a cottage, &c.

CRIB, in the English salt-works, a name given to a sort of case used in some places instead of the *drab*, to put

Crew
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Crib.

Cribbage put the salt into as it is taken out of the boiling pan.

Crichton. CRIBBAGE, a game at cards, to be learnt only by practice.

CRIBRATION, in pharmacy, the passing any substance through a sieve or searce, in order to separate the finer particles from the grosser.

CRIBROSUM OS, in anatomy, called also *ethmoides*. See *Anatomy*, n° 17.

CRICELASIA, the driving a ring or hoop. Driving a hoop was one of the ancient gymnastics: this hoop was as high as the breast of the person who used it. It was commended for rendering the limbs pliable, and for strengthening the nerves.

CRICETUS, in zoology. See *Mus*.

• MS Memoir read to the Society of Antiquaries at Edinburgh.

CRICHTON (James), a Scots gentleman, who lived in the 16th century, and who, on account of his extraordinary endowments both of body and mind, obtained the appellation of "the admirable Crichton;" by which title he has continued to be distinguished down to the present day. The time of this celebrated person's birth is said, by the generality of writers, to have been in 1551; but according to Lord Buchan*, it appears, from several circumstances, that he was born in the month of August 1560. There is a difference likewise between the Earl of Buchan and other biographers, with regard to the family of Crichton, and the rank and situation of his father. The common accounts assert, that James Crichton's father was Robert Crichton of Clonie, in the county of Perth; and that this Robert Crichton commanded Queen Mary's army at the battle of Langside in the year 1568. But from the Earl of Buchan we learn, that this gentleman was of Ellicock in the same county, and that he was lord advocate of Scotland in queen Mary's reign from 1561 to 1573; part of which time he held that office in conjunction with Spens of Condie. The mother of James Crichton was Elizabeth Stuart, the only daughter of Sir James Stuart of Beath, who was a descendant of Robert duke of Albany, the third son of king Robert the second, by Elizabeth Muir or More, as she is commonly called. It is hence evident, that when the admirable Crichton boasted (as he did abroad), that he was sprung from Scottish kings, he said nothing but what was agreeable to truth.

James Crichton is said to have received his grammatical education at Perth, and to have studied philosophy in the university of St Andrew. His tutor in that university was Mr John Rutherford, a professor at that time famous for his learning, and who distinguished himself by writing four books on Aristotle's logic and a commentary on his poetics. According to Aldus Manutius, who calls Crichton first cousin to the king, he was also instructed, along with his majesty, by Buchanan, Hepburn, and Robertson, as well as by Rutherford; and he had scarcely arrived to the 20th year of his age, when he had run through the whole circle of the sciences, and could speak and write to perfection in ten different languages. Nor was this all; for he had likewise improved himself to the highest degree in riding, dancing, and singing, and in playing upon all sorts of instruments.

Crichton, being thus accomplished, went abroad upon his travels, and is said to have gone to Paris; of his transactions at which place the following account

is given. He caused six placards to be fixed on all the gates of the schools, halls, and colleges belonging to the university, and on all the pillars and posts before the houses of the most renowned men for literature in the city, inviting all those who were well versed in any art or science, to dispute with him in the college of Navarre, that day six weeks, by nine of the clock in the morning, where he would attend them, and be ready to answer to whatever should be proposed to him in any art or science, and in any of these 12 languages, Hebrew, Syriac, Arabic, Greek, Latin, Spanish, French, Italian, English, Dutch, Flemish, and Sclavonian; and this either in verse or prose at the discretion of the disputant. During this whole time, instead of closely applying to his studies, he regarded nothing but hunting, hawking, tilting, vaulting, riding of a well managed horse, tossing the pike, handling the musket, and other military feats; or else he employed himself in domestic games, such as balls, concerts of music vocal and instrumental; cards, dice, tennis, and the like diversions of youth. This conduct so provoked the students of the university, that, beneath the placard which was fixed on the Navarre gate they caused the following words to be written: "If you would meet with this monster of perfection, to make search for him either in the tavern or bawdy-house, is the readiest way to find him." Nevertheless, when the day appointed arrived, Crichton appeared in the college of Navarre, and acquitted himself beyond expression in the disputation, which lasted from nine o'clock in the morning till six at night. At length, the president, after extolling him highly for the many rare and excellent endowments which God and nature had bestowed upon him, rose from his chair, and accompanied by four of the most eminent professors of the university, gave him a diamond ring, and a purse full of gold, as a testimony of their love and favour. The whole ended with the repeated acclamations and huzzas of the spectators; and henceforward our young disputant was called, "the admirable Crichton." It is added, that he was so little fatigued with the dispute, that he went on the very next day to the Louvre, where he had a match of tilting (an exercise then in much request), and in the presence of some of the princes of the court of France, and a great many ladies, carried away the ring 15 times successively.

About two years after this we find him at Rome, where he affixed a placard upon all the eminent places of the city, in the following terms: *Nos Jacobus Crichtonus Scotus, cuicumque rei proposita ex improviso responderimus.* In a city which abounded in wit, this bold challenge, to answer to any question that could be proposed to him without his being previously advertised of it, could not escape the ridicule of a pasquinade. It is said, however, that being nowise discouraged, he appeared at the time and place appointed; and that, in the presence of the pope, many cardinals, bishops, doctors of divinity, and professors in all the sciences, he displayed such wonderful proofs of his universal knowledge, that he excited no less surprise than he had done at Paris. Boccacini, who was then at Rome, gives something of a different relation of the matter. According to this author, the pasquinade against Crichton, which was to the following effect, "And he that will see it let him go to

Crichton.

Crichton. *the sign of the Falcon and it shall be shown,*" made such an impression upon him, that he left a place where he had been so grossly affronted as to be put upon a level with jugglers and mountebanks.

From Rome he went to Venice; where he contracted an intimate friendship with Aldus Manutius, Laurentius Massa, Speron Speronius, Johannes Donatus, and various other learned persons, to whom he presented several poems in commendation of the city and university. At length he was introduced to the Doge and Senate, in whose presence he made a speech, which was accompanied with such beauty of eloquence, and such grace of person and manner, that he received the thanks of that illustrious body, and nothing was talked of through the whole city but this *rara in terris avis*, this prodigy of nature. He held, likewise, disputations on the subjects of theology, philosophy, and mathematics, before the most eminent professors, and large multitudes of people. His reputation was so great, that the desire of seeing and hearing him brought together a vast concourse of persons from different quarters to Venice. It may be collected from Manutius, that the time in which Crichton exhibited these demonstrations of his abilities was in the year 1580.

During his residence at Venice, he fell into a bad state of health, which continued for the space of four months. However, before he was perfectly recovered, he went, by the advice of his friends, to Padua, the university of which city was at that time in great reputation. The next day after his arrival, there was a meeting of all the learned men of the place, at the house of Jacobus Aloysius Cornelius; when Crichton opened the assembly with an extemporary poem in praise of the city, the university, and the company who had honoured him with their presence. After this, he disputed for six hours with the most celebrated professors on various subjects of learning; and he exposed, in particular, the errors of Aristotle and his commentators, with so much solidity and acuteness, and at the same time with so much modesty, that he excited universal admiration. In conclusion, he delivered extempore an oration in praise of ignorance, which was conducted with such ingenuity and elegance, that his hearers were astonished. This exhibition of Crichton's talents was on the 14th of March 1581. Soon after he appointed a day for another disputation to be held at the palace of the bishop of Padua; not for the purpose of affording higher proofs of his abilities, for that could not possibly be done, but in compliance with the earnest solicitations of some persons who were not present at the former assembly. However, several circumstances occurred which prevented this meeting from taking place. Such is the account of Manutius: but Imperialis relates, that he was informed by his father, who was present upon the occasion, that Crichton was opposed by Archangelus Mercenarius, a famous philosopher; and that he acquitted himself so well as to obtain the approbation of a very honourable company, and even of his antagonist himself.

Amidst the discourses which were occasioned by our young Scot's exploits, and the high applauses that were bestowed upon his genius and attainments, some persons there were who endeavoured to detract from his merit. For ever, therefore, to confound these in-

vidious impugnors of his talents, he caused a paper to be fixed on the gates of St John and St Paul's church, wherein he offered to prove before the university, that the errors of Aristotle, and of all his followers, were almost innumerable; and that the latter had failed both in explaining their master's meaning, and in treating on theological subjects. He promised likewise to refute the dreams of certain mathematical professors; to dispute in all the sciences; and to answer to whatever should be proposed to him or objected against him. All this he engaged to do, either in the common logical way or by numbers and mathematical figures, or in 100 sorts of verses, at the pleasure of his opponents. According to Manutius, Crichton sustained this contest, without fatigue, for three days; during which time he supported his credit, and maintained his propositions, with such spirit and energy, that from an unusual concourse of people, he obtained acclamations and praises, than which none more magnificent were ever heard by men.

From Padua, Crichton set out for Mantua; where there happened to be at the time a gladiator, who had foiled, in his travels, the most famous fencers in Europe, and had lately killed three who had entered the lists with him in this city. The duke of Mantua was much grieved at having granted this man his protection, as he found it to be attended with such fatal consequences. Crichton, being informed of his Highness's concern, offered his service, not only to drive the murderer from Mantua, but from Italy; and to fight him for 1500 pistoles. Though the duke was unwilling to expose such an accomplished gentleman to so great a hazard; yet, relying upon the report he had heard of his warlike achievements, he agreed to the proposal; and the time and place being appointed, the whole court attended to behold the performance. At the beginning of the combat Crichton stood only upon his defence; while the Italian made his attack with such eagerness and fury, that, having overacted himself, he began to grow weary. Crichton now seized the opportunity of attacking his antagonist in return; which he did with so much dexterity and vigour, that he ran him through the body in three different places, of which wounds he immediately died. The acclamations of the spectators were loud and extraordinary upon this occasion; and it was acknowledged by all of them, that they had never seen Art grace Nature, or Nature second the precepts of Art, in so lively a manner as they had beheld these two things accomplished on that day. To crown the glory of the action, Crichton bestowed the prize of his victory upon the widows of the three persons who had lost their lives in fighting with the gladiator.

It is asserted, that in consequence of this and his other wonderful performances, the duke of Mantua made choice of him for preceptor to his son Vincentio di Gonzaga, who is represented as being of a riotous temper and a dissolute life. The appointment was highly pleasing to the court. Crichton, to testify his gratitude to his friends and benefactors, and to contribute to their diversion, framed, we are told, a comedy, wherein he exposed and ridiculed all the weaknesses and failures of the several employments in which men are engaged. This composition was regarded as one of the most ingenious satires that ever was made upon mankind. But the most

Crichton. most astonishing part of the story is, that Crichton sustained 15 characters in the representation of his own play. Among the rest, he acted the divine, the philosopher, the lawyer, the mathematician, the physician, and the soldier, with such inimitable grace, that every time he appeared upon the theatre he seemed to be a different person.

From being the principal actor in a comedy, Crichton soon became the subject of a dreadful tragedy. One night, during the time of carnival, as he was walking along the streets of Mantua, and playing upon his guitar, he was attacked by half a dozen people in masks. The assailants found that they had no ordinary person to deal with, for they were not able to maintain their ground against him. In the issue, the leader of the company being disarmed, pulled off his mask, and begged his life, telling him that he was the prince his pupil. Crichton immediately fell upon his knees, and expressed his concern for his mistake; alleging, that what he had done was only in his own defence, and that if Gonzaga had any design upon his life, he might always be master of it. Then taking his own sword by the point, he presented it to the prince, who immediately received it, and was so irritated by the affront which he thought he had sustained in being foiled with all his attendants, that he instantly ran Crichton through the heart.

Various have been the conjectures concerning the motives which could induce Vincentio di Gonzaga to be guilty of so ungenerous and brutal an action. Some have ascribed it to jealousy, asserting that he suspected Crichton to be more in favour than himself with a lady whom he passionately loved; and Sir Thomas Urquhart has told a story upon this head which is extravagant and ridiculous in the highest degree. Others, with greater probability, represent the whole transaction as the result of a drunken frolic; and it is uncertain, according to Imperialis, whether the meeting of the prince and Crichton was by accident or design. However, it is agreed on all hands that Crichton lost his life in this rencounter. The time of his decease is said, by the generality of his biographers, to have been in the beginning of July 1583; but Lord Buchan fixes it to the same month in the preceding year. There is a difference, likewise, with regard to the period of life at which Crichton died. The common accounts declare that he was killed in the 32d year of his age: but Imperialis asserts that he was only in his 22d when that calamitous event took place; and this fact is confirmed by Lord Buchan.

Crichton's tragical end excited a very great and general lamentation. If Sir Thomas Urquhart is to be credited, the whole court of Mantua went three quarters of a year into mourning for him; the epitaphs and elegies that were composed upon his death and stuck upon his hearse, would exceed, if collected, the bulk of Homer's works; and, for a long time afterwards, his picture was to be seen in most of the bed-chambers and galleries of the Italian nobility, representing him on horseback, with a lance in the one hand and a book in the other. The same author tells us, that Crichton gained the esteem of kings and princes, by his magnanimity and knowledge; of noblemen and gentlemen, by his courtness and breeding; of knights, by his honourable deportment and

pregnancy of wit; of the rich, by his affability and good fellowship; of the poor, by his munificence and liberality; of the old, by his constancy and wisdom; of the young, by his mirth and gallantry; of the learned, by his universal knowledge; of the soldiers, by his undaunted valour and courage; of the merchants and artificers, by his upright dealing and honesty; and of the fair sex, by his beauty and handsomeness, in which respect he was a masterpiece of nature.

Joannes Imperialis, in his life of Crichton, says, That he was the wonder of the last age; the prodigious production of nature; the glory and ornament of Parnassus, in a stupendous and unusual manner; and that, in the judgment of the learned world, he was the phoenix of literature, and rather a shining particle of the Divine Mind and Majesty than a model of what could be attained by human industry. The same author, after highly celebrating the beauty of his person, asserts, that his extraordinary eloquence and his admirable knowledge of things testified that he possessed a strength of genius wholly divine. "What (adds this writer) can more exceed our comprehension, than that Crichton, in the 21st year of his age, should be master of ten different languages, and perfectly well versed in philosophy, mathematics, theology, polite literature, and all other sciences? Besides, was it ever heard in the whole compass of the globe, that to these extraordinary endowments of the mind should be added a singular skill in fencing, dancing, singing, riding, and in every exercise of the gymnastic art?" Nay, Imperialis, in his account of Crichton's death, declares, that the report of so sad a catastrophe was spread to the remotest parts of the earth; that it disturbed universal nature; and that in her grief for the loss of the wonder she had produced, she threatened never more to confer such honour upon mankind. Compared with these extravagancies, the assertion of Bayle that Crichton was one of the greatest prodigies of wit that ever lived, and the testimony of Fælix Astolfus concerning his wonderful memory, may be considered as modest encomiums.

Such are the accounts which, by a succession of writers, and particularly since the time of Mackenzie, have been given of the admirable Crichton. These accounts are indeed so wonderful, that many persons have been disposed to consider them as in a great measure, if not entirely, fabulous. We shall therefore subjoin from the *Biographia Britannica* the following observations of Dr Kippis, with a view to ascertain what portion of faith is due to the different parts of the preceding narrative, or at least to assist the reader in forming a proper judgment concerning them.

The Doctor begins with observing, "That no credit can be granted to any facts which depend upon the sole authority of Sir Thomas Urquhart. Mr Pennant indeed speaks of him with approbation; and Dr Samuel Johnson laid a stress on his veracity, in the account of Crichton which he dictated to Dr Hawksworth, and is inserted in the 81st number of the *Adventurer*; of which account it may be observed, that it is only an elegant summary of the life written by Mackenzie. But with all deference to these respectable names. I must declare my full persuasion that Sir Thomas Urquhart is an author whose testimony to facts is totally unworthy."

Crichton. worthy of regard; and it is surprising that a perusal of his works does not strike every mind with this conviction. His productions are so inexpressibly absurd and extravagant, that the only rational judgment which can be pronounced concerning him is, that he was little, if at all, better than a madman. To the character of his having been a madman must be added that of his being a liar. Severe as this term may be thought, I apprehend that a diligent examination of the treatise which contains the memorials concerning Crichton would show that it is strictly true. But of his total disregard to truth there is incontestable evidence in another work of his, intitled, *The true Pedigree and Lineal Descent of the most ancient and honourable Family of the Urquharts in the House of Cromarty, from the Creation of the World until the year of God 1652*. In this work it is almost incredible what a number of falsities he has invented both with respect to names and facts. Perhaps a more flagrant instance of imposture and fiction was never exhibited; and the absurdity of the whole pedigree is beyond the power of words to express. It can only be felt by those who have perused the tract itself. Such a man therefore can justly be entitled to no degree of credit, especially when he has a purpose to serve, as was the case with Sir Thomas Urquhart. His design was to exalt his own family and his own nation at any rate. With respect to his own nation, there was no occasion for having recourse to fiction, in order to display the lustre of Scotland, in the eminent men whom it has produced in arms and literature. The pencil of truth alone would have been amply sufficient for that purpose.

"So far therefore as Sir Thomas Urquhart's authority is concerned, the wonderful exhibitions of Crichton at Paris, his triumph at Rome, his combat with the gladiator, his writing an Italian comedy, his sustaining fifteen characters in the representation of that comedy, the extraordinary story of the amour which is described as the cause of his death, the nine months mourning for him at Mantua, and the poems hung round his bier to the quantity of Homer's works, must be regarded as in the highest degree doubtful, or rather absolutely false. I cannot forbear mentioning two circumstances, which show how much Sir Thomas Urquhart was destitute of prudence, as well as of scrupulosity, in his violations of truth. He says that the duke of Mantua was pleased to confer upon the young lady that was Crichton's mistress and future wife, a pension of five hundred ducats a year;

and that the prince also bestowed as much upon her Crichton. during all the days of his life, "which was (adds Sir Thomas) but short; for he did not long enjoy himself after the cross fate of so miserable an accident. Now it is well known that Vincenzo di Gonzaga succeeded his father in the dukedom of Mantua in 1587, and that he did not die till the year 1612; which was almost, if not entirely, thirty years after Crichton's decease. The other instance of the imprudence of Sir Thomas Urquhart in the contrivance of his fictions, occurs at the conclusion of his narrative, where he asserts that the verity of the story which he hath related concerning the incomparable Crichton, 'may be certified by two thousand men yet living who have known him.' *Two thousand men yet living!* that is, in 1652, sixty-nine or seventy years after Crichton's death, for such was the time of Sir Thomas's publication. Our author would have been sadly puzzled to collect together these two thousand living witnesses who could certify the verity of his story.

"With regard, however, to the account which is given of the prodigious exertions of Crichton, both corporal and mental, at Paris, Mackenzie imagines that he has found a full confirmation of them in a passage produced by him from the *Disquisitiones* of Stephen Pasquier, and which he considers as the testimony of an eye witness. But the whole of what has been built upon it by Mackenzie and succeeding biographers, is founded on a mistake. In the quotation from the *Disquisitiones*, the name of Crichton is not mentioned, and the author doth not appear to have been personally present at the exhibitions of the extraordinary youth there described. The expressions which are supposed to carry that meaning may well be referred not to the writer himself, but to his countrymen the French, before whom the young man is said to have displayed his surprising talents. But the discussion of this point is totally needless, because the passage in question is not an original authority. The book intitled *Stephani Paschieri Disquisitiones*, is only an abridgement in Latin of Pasquier's *Des Recherches de la France*. Now in this last work there is indeed an account of a wonderful youth, such as is related in Mackenzie's quotation, and from which that passage was formed. But this wonderful youth, whoever he might be, was not the admirable Crichton: for Pasquier, who does not tell his name, expressly says that he appeared in the year 1445 (A). The evidence, therefore, produced by Mackenzie falls entirely to the ground.

(A) This matter has lately been set in a clear light by a learned and judicious writer in the Edinburgh Magazine for May 1787, whose letter is as follows.

"S I R,

"We are informed by Sir John Hawkins, that Dr Johnson dictated from memory that account of the person vulgarly named *the Admirable Crichton*, which is to be found in one of the papers of the Adventurer.

"That account is plainly an abridgement of the life of Crichton by Dr George Mackenzie. Dr Mackenzie supposes that Pasquier, the French lawyer and antiquary, was an eye witness of the feats performed in arts as well as in arms by Crichton. This is one of the grossest errors in biography which has occurred to me in the course of my reading: and it is an error which I perceive is gaining ground daily, and bids fair in a short time to be received as an indisputable truth.

"The error seems to have arisen from the following circumstance: Dr Mackenzie had never read the original work of Pasquier intitled *Recherches de la France*; what he quotes concerning *the wonderful young man* is

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ground. Indeed, if the story of Crichton's exploits at Paris had been true, no man was more likely to be acquainted with them than Stephen Pasquier, who lived at the time, and who would be fond enough of recording transactions so extraordinary. It may farther be observed, that Thuanus, who was likewise a contemporary, and who in his own life is very particular in what relates to learned men, makes no mention of Crichton. The only authority for his having ever resided in France at all (Sir Thomas Urquhart excepted) is that of Dr John Johnston, who says *Gallia pectus excolit*. But this amounts to no proof of the truth of the transactions related by Urquhart. The whole which can be deduced from it is, that Crichton, in the course of his travels, might make some stay in France for the purpose of improvement. Even this, however, doth not agree with the narration of Imperialis, who informs us, that when troubles arose in Scotland on account of religion, and queen Mary fell into so many calamities, Crichton was sent by his father directly from that country to Venice as a place of security.

"It is acknowledged by Sir John Hawkins, that Sir Thomas Urquhart has produced no authorities in support of his surprising narrations. But this defect, Sir John thinks, is supplied in the Life of Crichton which is given in Mr Pennant's Tour. I am under the necessity of saying, that this is by no means the case. The article in Pennant was not drawn up by that ingenious and learned gentleman, but is the transcript of a pamphlet, that was printed some years ago at Aberdeen; and which pamphlet is nothing more than a republication, with a few verbal alterations, of the Life of Crichton written by Mackenzie. It doth not, therefore furnish a single additional testimony in confirmation of Sir Thomas Urquhart's stories, excepting in the mistaken instance from Pasquier. In other respects it only borrows facts from Sir Thomas Urquhart, without establishing them upon fresh proofs. It is observable, that the earlier biographers of Crichton had no knowledge of most of the transactions enlarged

upon by this extravagant writer; for if they had known them, they would have been eagerly disposed to relate them, and to do it with every circumstance of exaggeration. How much this was the character of Thomas Dempster, with regard to his own countrymen, is sufficiently understood, and hath frequently been remarked; and yet his account of Crichton is uncommonly modest, compared with those of succeeding authors. The extravagance of Imperialis in respect to Crichton has already appeared. There seems indeed to have been an universal tendency in the writers of this young Scotsman's life to produce wonder and astonishment. Mackenzie remarks, that Imperialis could not but know the truth of all, or at least of most of, the things he has related concerning Crichton, since he lived upon the places in which they were transacted, and had them from an eye and ear witness, even his own father. It is, however, to be remembered, that Imperialis's *Museum Historicum* was not published till 1640, nearly sixty years after the events recorded by him happened; to which may be added, that the information he derived from his father was probably very imperfect. Imperialis the elder was not born till 1568, and consequently was only thirteen years old when Crichton displayed his talents at Padua. What real dependence, therefore, could there be on the accuracy of the account given by a youth of that age? He could only relate, and perhaps from inadequate intelligence, the things which were talked of when he was a boy. Besides, his authority is appealed to for no more than a single fact, and that a doubtful one, since it does not accord with Manutius's narrative: and who ever heard of the famous philosopher Arcangelus Mercenarius?

"The truth of the matter is, that, some slight circumstances excepted, neither Dempster nor Imperialis have produced any evidences of Crichton's extraordinary abilities besides those which are recorded by the younger Aldus Manutius. He therefore is to be regarded as the only living authority upon the subject

is taken from a Latin abridgement of that work; he refers to *Steph. Pasch. Disquis. lib. v. cap. 23.* and he gives his quotation in Latin; indeed it does not appear that Dr Mackenzie had ever heard of the original work. Now Pasquier, instead of saying that he was an eye-witness of the wonders exhibited by Crichton, says, in the most unequivocal terms, that what he relates was taken 'from a manuscript which was occasionally used by him,' (*d'un livre écrit à la main dont je m'aide selon les occurrences*). And he adds, 'I will represent the story in its own simple garb, without any artificial colouring, so that my readers may be the more inclined to give credit to it,' (*vous représentant cette histoire en sa simplicité sans y apporter aucun fard pour ce que vous y adjousserez plus de foy*). He then transcribes the narrative from the MS. which places the appearance of this phenomenon in the year 1445, a full century before the birth of our Crichton. See *Recherches de la France*, lib. vi. c. 38, 39.

"Dr Mackenzie, although he had not read the original of Pasquier, appears to have read an author who quotes the same story: 'The learned M. du Launoy (says he), in his History of the college of Navarre, finding the history of this dispute recorded in a MS. History of the College of Navarre, and the like account of a Spaniard in Trithemius, confounds the two together, and robs our author of the glory of this action, and places it in the year 1445; whereas it should be in the year 1571.' This charge of robbery is singular enough.

"Let me only add, that Pasquier transcribes some verses written by George Chastelain, a French poet in the reign of Charles VII. King of France, which allude to the same story; and that Pasquier himself was born at Paris in 1528, passed his life in that city, and was an eminent lawyer and pleader in 1571; so that it is impossible the feats of Crichton, had they been really performed at Paris, could have been unknown to him, and most improbable that, knowing them, he would have omitted to mention them; for, in the same lib. vi. c. 39. he is at pains to produce examples of great proficiency, displayed by men in a much humbler rank of life than that of philosophers and public disputants. I am, &c."

Crichton. **ject.** Manutius was contemporary with Crichton; he was closely connected with him in friendship; and he relates several things on his own personal knowledge. He is a positive and undoubted witness with respect to our young Scotsman's intellectual and literary exertions at Venice and at Padua; and from him it is that our account of them is given above. Nevertheless, even Aldus Manutius is to be read with some degree of caution. Dedications are apt to assume the style of exaggeration, and this is the case with Manutius's dedication of the *Paradoxa Ciceronis* to Crichton. In addition to the general language of such addresses, he might be carried too far by his affection for his friend, which appears to have been very great: nor was the younger Aldus eminent for steadiness and consistency of character. It is even said that by his imprudencies he fell into contempt and misery. But independently of any considerations of this kind, it may be observed, that Manutius's narrative, previously to Crichton's arrival at Venice, could not be derived from personal knowledge. For that part of it (which is sufficiently erroneous) he was probably indebted to Crichton himself. Neither does he appear to have been an eye-witness of the whole of the disputations which were held at Padua; for speaking of his young friend's praise of ignorance, he relates, that those who were present told him afterwards how much they were struck with that oration. However, at the other disputation, which lasted three days, Manutius seems certainly to have attended; for he concludes his accounts of it with saying, that he was not only the adviser but the spectator of Crichton's wonderful contests. It is evident, however, from the dedication, that his extraordinary abilities were not universally acknowledged and admired. Some there were who detracted from them, and were displeased with Manutius for so warmly supporting his reputation.

"As to the real cause and manner of our young Scotsman's death, both of them still remain in some degree of obscurity. That he was killed in a rencounter at the carnival at Mantua, is testified by too many authors to be reasonably doubted. But whether there was that particular malignity on the part of Vincenzo di Gonzago, which is commonly ascribed to him, may be considered as uncertain.

"One important method yet remains by which we may be enabled to form a judgment of Crichton's genius, and that is from a perusal of the four poems of his which are still preserved. It is, however, to be feared, that these will not exhibit him in a very high point of view. Some fancy, perhaps, may be thought to be displayed in the longest of his poems, which was written on occasion of his approach to the city of Venice. He there represents a Naiad as rising up before him; and, by the order of the Muses and of Minerva, directing him how to proceed. But this is a sentiment which so easily presents itself to a classical reader, that it can scarcely be considered as deserving the name of a poetical invention. The three other poems of Crichton have still less to recommend them. Indeed his verses will not stand the test of a rigid examination even with regard to quantity.

"What then is the opinion which on the whole we are to form of the admirable Crichton? It is evident that he was a youth of such lively parts as excited

great present admiration, and high expectations with regard to his future attainments. He appears to have had a fine person, to have been adroit in his bodily exercises, to have possessed a peculiar facility in learning languages, to have enjoyed a remarkably quick and retentive memory, and to have excelled in a power of declamation, a fluency of speech, and a readiness of reply. His knowledge, likewise, was probably very uncommon for his years; and this, in conjunction with his other qualities, enabled him to shine in public disputation. But whether his knowledge and learning were accurate or profound, may justly be questioned; and it may equally be doubted whether he would have arisen to any extraordinary degree of eminence in the literary world. It will always be reflected upon with regret, that his early and untimely death prevented this matter from being brought to the test of experiment."

From the portraits which remain of Crichton, it appears that in his face and form he was beautiful and elegant, and that his body and limbs, though not muscular or athletic, were well proportioned, and fitted for feats of agility. The following catalogue of Crichton's works is given by Dempster: 1. *Ode ad Laurentium Massam plures.* 2. *Laudes Patavinae, Carmen extempore effusum, cum in Jacobi Moyssi Cornelii domo experimentum ingenii coram tota Academia frequentia, non sine multorum stupore faceret.* 3. *Ignorantionis Laudatio, extemporale Thema ibidem redditum, post sex horarum disputationes, ut praesentes somnia potius sovere quam rem se veram videre affirmarint, ait, Manutius.* 4. *De Appulsu sua Venetias.* 5. *Ode ad Aldum Manutium.* 6. *Epistolae ad Diversos.* 7. *Praefationes solennes in omnes Scientias sacras et profanas.* 8. *Judicium de Philosophis.* 9. *Errores Aristotelis.* 10. *Arma an Literae praestant, Controversia oratoria.* 11. *Refutatio Mathematicorum.* 12. A Comedy in the Italian language.

CRICK, among farriers, is when a horse cannot turn his neck any manner of way, but holds it fore right, insomuch that he cannot take his meat from the ground without great pain.

CRICKET, in zoology. See **GRYLLUS**.

CRICKET is also the name of an exercise or game, with bats and a ball.

Mole-CRICKET. See **GRYLLOTALPA**.

CRICKLADE, a borough-town of Wiltshire situated on the river Isis, about 26 miles south-west of Oxford. It sends two members to parliament. W. Long. 1. 55. N. Lat. 51. 35.

CRICOARYTANOIDEUS, in anatomy, a name given to two muscles of the larynx. See **ANATOMY**. n° 116.

CRICOIDES, in anatomy, a cartilage of the larynx, called also the *annular cartilage*. It occupies the lowest part by way of base to the rest of the cartilages, and to the lower part of it the *aspera arteria* adheres. See **ANATOMY**, *Table of the muscles*.

CRICOTHYROIDÆUS, in anatomy, one of the five proper muscles of the larynx. *Ibid.*

CRIM-TARTARS, a people of Asia, so called because they originally came from Crimea. They rove from place to place in search of pastures, their houses being drawn on carts. There are a great number of them about Astrachan, to which place they flock in the winter-time; but they are not permitted to enter the city: for this reason, they erect huts up and down

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down in the open fields; which are made either of bull-rushes or reeds, being about 12 feet in diameter, of a round form, and with a hole at the top to let out the smoke. Their fuel is turf or cow-dung; and, when the weather is very cold, they cover the hut with a coarse cloth, and sometimes pass several days without stirring out. They are generally of small stature, with large faces, little eyes, and of an olive complexion. The men are generally so wrinkled in their faces, that they look like old women. Their common food is fish dried in the sun, which serves them instead of bread; and they eat the flesh of horses as well as camels. Their drink is water and milk, especially mares milk, which they carry about in nasty leathern-bags. Their garments are of coarse grey cloth, with a loose mantle made of a black sheep's skin, and a cap of the same. The women are clothed in white linen, with which likewise they dress their heads, hanging a great many Moscovian pence about them; and there is likewise a hole left to stick feathers in. As for their religion, they are a sort of Mahometans; but do not coop up their women like the Turks.

CRIM TARTARY, or *Crimea*. See CRIMEA.

CRIME and PUNISHMENT. The discussion and admeasurement of crimes and punishments forms in every country the code of criminal law; or, as it is more usually denominated in England, the doctrine of the *pleas of the crown*: so called, because the king, in whom centres the majesty of the whole community, is supposed by the law to be the person injured by every infraction of the public rights belonging to that community; and is therefore in all cases the proper prosecutor for every public offence.

The knowledge of this branch of jurisprudence, which teaches the nature, extent, and degrees of every crime, and adjusts to it its adequate and necessary penalty, is of the utmost importance to every individual in the state. For no rank or elevation in life, no uprightness of heart, no prudence or circumspection of conduct, should tempt a man to conclude, that he may not at some time or other be deeply interested in these researches. The infirmities of the best among us, the vices and ungovernable passions of others, the instability of all human affairs, and the numberless unforeseen events which the compass of a day may bring forth, will teach us (upon a moment's reflection), that to know with precision what the laws of our country have forbidden, and the deplorable consequences to which a wilful disobedience may expose us, is a matter of universal concern.

In proportion to the importance of the criminal law, ought also to be the care and attention of the legislator in properly forming and enforcing it. It should be founded upon principles that are permanent, uniform, and universal; and always conformable to the dictates of truth and justice, the feelings of humanity, and the indelible rights of mankind: though it sometimes (provided there be no transgression of these eternal boundaries) may be modified, narrowed, or enlarged, according to the local or occasional necessities of the state which it is meant to govern. And yet, either from a want of attention to these principles in the first concoction of the laws, and adopting in their stead the impetuous dictates of avarice, ambi-

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tion and revenge; from retaining the discordant political regulations, which successive conquerors or factions have established, in the various revolutions of government; from giving a lasting efficacy to sanctions that were intended to be temporary, and made (as lord Bacon expresses it) merely upon the spur of the occasion; or from, lastly, too hastily employing such means as are greatly disproportionate to their end, in order to check the progress of some very prevalent offence; from some, or from all, of these causes it hath happened, that the criminal law is in every country of Europe more rude and imperfect than the civil. We shall not here enter into any minute inquiries concerning the local constitutions of other nations; the inhumanity and mistaken policy of which have been sufficiently pointed out by ingenious writers of their own*. But even with us in Britain, where our crown-law is with justice supposed to be more nearly advanced to perfection; where crimes are more accurately defined, and penalties less uncertain and arbitrary; where all our accusations are public, and our trials in the face of the world; where torture is unknown, and every delinquent is judged by such of his equals, against whom he can form no exception, nor even a personal dislike;—even here we shall occasionally find room to remark some particulars that seem to want revision and amendment. These have chiefly arisen from too scrupulous an adherence to some rules of the ancient common law, when the reasons have ceased upon which those rules were founded; from not repealing such of the old penal-laws as are either obsolete or absurd; and from too little care and attention in framing and passing new ones. The enacting of penalties to which a whole nation shall be subject, ought not to be left, as a matter of indifference, to the passions or interests of a few, who upon temporary motives may prefer or support such a bill; but be calmly and maturely considered by persons who know what provisions the laws have already made to remedy the mischief complained of, who can from experience foresee the probable consequences of those which are now proposed, and who will judge without passion or prejudice how adequate they are to the evil. It is never usual in the house of peers even to read a private bill which may affect the property of an individual, without first referring it to some of the learned judges, and hearing their report thereon. And surely equal precaution is necessary, when laws are to be established, which may affect the property, the liberty, and perhaps even the lives, of thousands. Had such a reference taken place, it is impossible that in the 18th century it could ever have been made a capital crime, to break down (however maliciously) the mound of a fishpond, whereby any fish shall escape; or to cut down a cherry-tree in an orchard. Were even a committee appointed but once in an hundred years to revise the criminal law, it could not have continued to this hour a felony without benefit of clergy, to be seen for one month in the company of persons who call themselves, or are called *Egyptians*.

It is true, that these outrageous penalties, being seldom or never inflicted, are hardly known to be the law by the public; but that rather aggravates the mischief, by laying a snare for the unwary. Yet they cannot but occur to the observation of any one, who

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*As, Baron
Montesquieu,
Marquis of
Beccaria,
&c.

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Comment.

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hath undertaken the task of examining the great outlines of our law, and tracing them up to their principles; and it is the duty of such a one to hint them with decency to those whose abilities and stations enable them to apply the remedy. Proceed we now to consider (in the first place) the general nature of crimes.

I. A crime, or misdemeanour, is an act committed, or omitted, in violation of a public law, either forbidding or commanding it. This general definition comprehends both crimes and misdemeanours; which, properly speaking, are mere synonymous terms: though, in common usage, the word "crimes" is made to denote such offences as are of a deeper and more atrocious dye; while smaller faults, and omissions of less consequence, are comprized under the gentler name of "misdemeanours" only.

The distinction of public wrongs from private, of crimes and misdemeanours from civil injuries, seems principally to consist in this: that private wrongs, or civil injuries, are an infringement or privation of the civil rights which belong to individuals, considered merely as individuals; public wrongs, or crimes and misdemeanours, are a breach and violation of the public rights and duties, due to the whole community, considered as a community, in its social aggregate capacity. As if I detain a field from another man, to which the law has given him a right, this is a civil injury, and not a crime; for here only the right of an individual is concerned, and it is immaterial to the public which of us is in possession of the land: but treason, murder, and robbery, are properly ranked among crimes; since, besides the injury done to individuals, they strike at the very being of society; which cannot possibly subsist, where actions of this sort are suffered to escape with impunity.

In all cases the crime includes an injury; every public offence is also a private wrong, and somewhat more; it affects the individual, and it likewise affects the community. Thus treason in imagining the king's death, involves in it conspiracy against an individual, which is also a civil injury; but as this species of treason in its consequences principally tends to the dissolution of government, and the destruction thereby of the order and peace of society, this denominates it a crime of the highest magnitude. Murder is an injury to the life of an individual; but the law of society considers principally the loss which the state sustains by being deprived of a member, and the pernicious example thereby set, for others to do the like. Robbery may be considered in the same view: it is an injury to private property; but, were that all, a civil satisfaction in damages might atone for it: the public mischief is the thing, for the prevention of which our laws have made it a capital offence. In these gross and atrocious injuries the private wrong is swallowed up in the public; we seldom here any mention made of satisfaction to the individual; the satisfaction to the community being so very great. And indeed, as the public crime is not otherwise avenged than by forfeiture of life and property, it is impossible afterwards to make any reparation for the private wrong: which can only be had from the body or goods of the aggressor. But there are crimes of an inferior nature, in which the public punishment is not so severe, but it

affords room for a private compensation also: and herein the distinction of crimes from civil injuries is very apparent. For instance; in the case of battery, or beating another, the aggressor may be indicted for this at the suit of the king, for disturbing the public peace, and be punished criminally by fine and imprisonment; and the party beaten may also have his private remedy by action of trespass for the injury, which he in particular sustains, and recover a civil satisfaction in damages. So also, in case of a public nuisance, as digging a ditch across a highway, this is punishable by indictment, as a common offence to the whole kingdom, and all his majesty's subjects: but if any individual sustains any special damage thereby, as laming his horse, breaking his carriage, or the like, the offender may be compelled to make ample satisfaction, as well for the private injury as for the public wrong.

II. The nature of crimes and misdemeanours in general being thus ascertained and distinguished, we proceed in the next place to consider the general nature of punishments: Which are evils or inconveniences consequent upon crimes and misdemeanours; being devised, denounced, and inflicted by human laws, in consequence of disobedience or misbehaviour in those, to regulate whose conduct such laws were respectively made. And herein we will briefly consider the *power*, the *end*, and the *measure*, of human punishment.

I. As to the *power* of human punishment, or the right of the temporal legislator to inflict discretionary penalties for crimes and misdemeanours. It is clear, *Blackst. Comment.* that the right of punishing crimes against the law of nature, as murder and the like, is in a state of mere nature, vested in every individual. For it must be vested in somebody; otherwise the laws of nature would be vain and fruitless, if none were empowered to put them in execution; and if that power is vested in any one, it must also be vested in all mankind; since all are by nature equal. Whereof the first murderer Cain was so sensible, that we find him expressing his apprehensions, that whoever should find him would slay him. In a state of society this right is transferred from individuals to the sovereign power; whereby men are prevented from being judges in their own causes, which is one of the evils that civil government was intended to remedy. Whatever power therefore individuals had of punishing offences against the law of nature, that is now vested in the magistrate alone; who bears the sword of justice by the consent of the whole community. And to this precedent natural power of individuals must be referred that right, which some have argued to belong to every state (though, in fact, never exercised by any), of punishing not only their own subjects, but also foreign ambassadors, even with death itself; in case they have offended, not indeed against the municipal laws of the country, but against the divine laws of nature, and become liable thereby to forfeit their lives for their guilt.

As to offences merely against the laws of society, which are only *mala prohibita*, and not *mala in se*; the temporal magistrate is also empowered to inflict coercive penalties for such transgression: and this by the consent of individuals; who, in forming societies, did,

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did either tacitly or expressly invest the sovereign power with a right of making laws, and of enforcing obedience to them when made, by exercising, upon their non observance, severities adequate to the evil. The lawfulness therefore of punishing such criminals is founded upon this principle, that the law by which they suffer was made by their own consent; it is a part of the original contract into which they entered, when first they engaged in society; it was calculated for, and has long contributed to, their own security.

This right therefore, being thus conferred by universal consent, gives to the state exactly the same power, and no more, over all its members, as each individual member had naturally over himself or others; which has occasioned some to doubt, how far a human legislature ought to inflict capital punishments for positive offences; offences against the municipal law only, and not against the law of nature; since no individual has, naturally, a power of inflicting death upon himself or others for actions in themselves indifferent. With regard to offences *mala in se*, capital punishments are in some instances inflicted by the immediate command of God himself to all mankind; as, in the case of murder, by the precept delivered to Noah, their common ancestor and representative, "Whoso sheddeth man's blood, by man shall his blood be shed." In other instances they are inflicted after the example of the Creator, in his positive code of laws for the regulation of the Jewish republic; as in the case of the crime against nature. But they are sometimes inflicted without such express warrant or example, at the will and discretion of the human legislature; as for forgery, for theft, and sometimes for offences of a lighter kind. This practice is thus justified by that great and good man Sir Matthew Hale: "When offences grow enormous, frequent, and dangerous to a kingdom or state, destructive or highly pernicious to civil societies, and to the great security and danger of the kingdom or its inhabitants, severe punishment and even death itself is necessary to be annexed to laws in many cases by the prudence of lawgivers." It is therefore the enormity, or dangerous tendency, of the crime, that alone can warrant any earthly legislature in putting him to death that commits it. It is not its frequency only, or the difficulty of otherwise preventing it, that will excuse our attempting to prevent it by a wanton effusion of human blood. For though the end of punishment is to deter men from offending, it never can follow from thence, that it is lawful to deter them at any rate and by any means; since there may be unlawful methods of enforcing obedience even to the justest laws. Every humane legislator will be therefore extremely cautious of establishing laws that inflict the penalty of death, especially for slight offences, or such as are merely positive. He will expect a better reason for his so doing, than that loose one which generally is given; that it is found by former experience that no lighter penalty will be effectual. For is it found upon farther experience, that capital punishments are more effectual? Was the vast territory of all the Russias worse regulated under the late empress Elizabeth, than under her more sanguinary predecessors? Is it now, under Catherine II. less civilized, less social, less secure? And yet we are assured, that neither of these

illustrious princesses have, throughout their whole administration, inflicted the penalty of death: and the latter has, upon full persuasion of its being useless, nay even pernicious, given orders for abolishing it entirely throughout her extensive dominions. But indeed, were capital punishments proved by experience to be a sure and effectual remedy, that would not prove the necessity (upon which the justice and propriety depend) of inflicting them upon all occasions when other expedients fail. It is feared this reasoning would extend a great deal too far. For instance, the damage done to our public roads by loaded waggons is universally allowed, and many laws have been made to prevent it, none of which have hitherto proved effectual. But it does not therefore follow, that it would be just for the legislature to inflict death upon every obstinate carrier, who defeats or eludes the provisions of former statutes. Where the evil to be prevented is not adequate to the violence of the preventive, a sovereign that thinks seriously can never justify such a law to the dictates of conscience and humanity. To shed the blood of our fellow creature is a matter that requires the greatest deliberation, and the fullest conviction of our own authority: for life is the immediate gift of God to man; which neither he can resign, nor can it be taken from him, unless by the command or permission of him who gave it, either expressly revealed, or collected from the laws of nature or society by clear and indisputable demonstration.

We would not be understood to deny the right of the legislature in any country to enforce its own laws by the death of the transgressor, though persons of some abilities have doubted it; but only to suggest a few hints for the consideration of such as are, or may hereafter become, legislators. When a question arises, whether death may be lawfully inflicted for this or that transgression, the wisdom of the laws must decide it: and to this public judgment or decision all private judgments must submit; else there is an end of the first principle of all society and government. The guilt of blood, if any, must lie at their doors, who misinterpret the extent of their warrant; and not at the doors of the subject, who is bound to receive the interpretations that are given by the sovereign power.

2. As to the end, or final cause, of human punishments. This is not by way of atonement or expiation for the crime committed; for that must be left to the just determination of the Supreme Being: but as a precaution against future offences of the same kind. This is effected three ways: either by the amendment of the offender himself; for which purpose all corporeal punishments, fines, and temporary exile or imprisonment, are inflicted: or, by deterring others by the dread of his example from offending in the like way, "*ut pana* (as Tully expresses it) *ad paucos, metu ad omnes, perveniat*;" which gives rise to all ignominious punishments, and to such executions of justice as are open and public: or, lastly, by depriving the party injuring of the power to do future mischief; which is effected by either putting him to death, or condemning him to perpetual confinement, slavery, or exile. The same one end, of preventing future crimes, is endeavoured to be answered by each of these three species of punishment. The public gains equal security,

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ity, whether the offender himself be amended by wholesome correction, or whether he be disabled from doing any farther harm: and if the penalty fails of both these effects, as it may do, still the terror of his example remains as a warning to other citizens. The method, however, of inflicting punishment ought always to be proportioned to the particular purpose it is meant to serve, and by no means to exceed it: therefore the pains of death, and perpetual disability by exile, slavery, or imprisonment, ought never to be inflicted, but when the offender appears incorrigible: which may be collected either from a repetition of minuter offences; or from the perpetration of some one crime of deep malignity, which of itself demonstrates a disposition without hope or probability of amendment: and in such cases it would be cruelty to the public to defer the punishment of such a criminal till he had an opportunity of repeating perhaps the worst of villainies.

3. As to the *measure* of human punishments. From what has been observed in the former articles we may collect, that the quantity of punishment can never be absolutely determined by any standing invariable rule; but it must be left to the arbitration of the legislature to inflict such penalties as are warranted by the laws of nature and society, and such as appear to be the best calculated to answer the end of precaution against future offences.

Hence it will be evident, that what some have so highly extolled for its equity, the *lex talionis*, or "law of retaliation," can never be in all cases an adequate or permanent rule of punishment. In some cases indeed it seems to be dictated by natural reason; as in the case of conspiracies to do an injury, or false accusations of the innocent; to which we may add that law of the Jews and Egyptians, mentioned by Josephus and Diodorus Siculus, that whoever without sufficient cause was found with any mortal poison in his custody, should himself be obliged to take it. But, in general, the difference of persons, place, time, provocation, or other circumstances, may enhance, or mitigate the offence; and in such cases retaliation can never be a proper measure of justice. If a nobleman strikes a peasant, all mankind will see, that if a court of justice awards a return of the blow, it is more than a just compensation. On the other hand, retaliation may sometimes be too easy a sentence; as, if a man maliciously should put out the remaining eye of him who had lost one before, it is too slight a punishment for the maimer to lose only one of his: and therefore the law of the Locrians, which demanded an eye for an eye, was in this instance judiciously altered; by decreeing, in imitation of Solon's laws, that he who struck out the eye of a one-eyed man, should lose both his own in return. Besides, there are very many crimes, that will in no shape admit of these penalties, without manifest absurdity and wickedness. Theft cannot be punished by theft, defamation by defamation, forgery by forgery, adultery by adultery, and the like. And we may add, that those instances, wherein retaliation appears to be used, even by the divine authority, do not really proceed upon the rule of exact retribution, by doing to the criminal the same hurt he has done to his neighbour, and no more; but this correspondence between the crime and punishment is barely a conse-

quence from some other principle. Death is ordered to be punished with death; not because one is equivalent to the other, for that would be expiation, and not punishment. Nor is death always an equivalent for death: the execution of a needy decrepid assassin is a poor satisfaction for the death of a nobleman in the bloom of his youth, and full enjoyment of his friends, his honours, and his fortune. But the reason upon which this sentence is grounded seems to be, that this is the highest penalty that man can inflict, and tends most to the security of the world; by removing one murderer from the earth, and setting a dreadful example to deter others: so that even this grand instance proceeds upon other principles than those of retaliation. And truly, if any measures of punishment is to be taken from the damage sustained by the sufferer, the punishment ought rather to exceed than equal the injury: since it seems contrary to reason and equity, that the guilty (if convicted) should suffer no more than the innocent has done before him; especially as the suffering of the innocent is past and irrevocable, that of the guilty is future, contingent, and liable to be escaped or evaded. With regard indeed to crimes that are incomplete, which consist merely in the intention, and are not yet carried into act, as conspiracies and the like; the innocent has a chance to frustrate or avoid the villany, as the conspirator has also a chance to escape his punishment: and this may be one reason why the *lex talionis* is more proper to be inflicted, if at all, for crimes that consist in intention, than for such as are carried into act. It seems indeed consonant to natural reason, and has therefore been adopted as a maxim by several theoretical writers, that the punishment, due to the crime of which one falsely accuses another, should be inflicted on the perjured informer. Accordingly, when it was once attempted to introduce into England the law of retaliation, it was intended as a punishment for such only as preferred malicious accusations against others; it being enacted by statute 37 Edw. III. c. 18. that such as preferred any suggestions to the king's great council should put in sureties of taliation; that is, to incur the same pain that the other should have had, in case the suggestion were found untrue. But, after one year's experience, this punishment of taliation was rejected, and imprisonment adopted in its stead.

But though from what has been said it appears, that there cannot be any regular determinate method of rating the quantity of punishments for crimes, by any one uniform rule; but they must be referred to the will and discretion of the legislative power: yet there are some general principles, drawn from the nature and circumstances of the crime, that may be of some assistance in allotting it an adequate punishment.

As, first, with regard to the object of it: for the greater and more exalted the object of an injury is, the more care should be taken to prevent that injury, and of course under this aggravation the punishment should be more severe. Therefore treason in conspiring the king's death is (in Britain) punished with greater rigour than even actually killing any private subject. And yet, generally a design to transgress is not so flagrant an enormity as the actual completion of that design. For evil, the nearer we approach it, is the more disagreeable and shocking;

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so that it requires more obstinacy in wickedness to perpetrate an unlawful action, than barely to entertain the thought of it: and it is an encouragement to repentance and remorse, even till the last stage of any crime, that it never is too late to retract; and that if a man stops even here, it is better for him than if he proceeds: for which reasons an attempt to rob, to ravish, or to kill, is far less penal than the actual robbery, rape, or murder. But in the case of a treasonable conspiracy, the object whereof is the king's majesty, the bare intention will deserve the highest degree of severity: not because the intention is equivalent to the act itself; but because the greatest rigour is no more than adequate to a treasonable purpose of the heart, and there is no greater left to inflict upon the actual execution itself.

Again: The violence of passion, or temptation, may sometimes alleviate a crime; as theft, in case of hunger, is far more worthy of compassion, than when committed through avarice, or to supply one in luxurious excesses. To kill a man upon sudden and violent resentment is less penal than upon cool deliberate malice. The age, education, and character, of the offender; the repetition (or otherwise) of the offence; the time, the place, the company wherein it was committed; all these, and a thousand other incidents, may aggravate or extenuate the crime (A).

Farther: As punishments are chiefly intended for the prevention of future crimes, it is but reasonable that among crimes of different natures those should be most severely punished, which are the most destructive of the public safety and happiness; and, among crimes of an equal malignity, those which a man has the most frequent and easy opportunities of committing, which cannot be so easily guarded against as others, and which therefore the offender has the strongest inducement to commit: according to what Cicero observes, *Ea sunt animadvertenda peccata maxime, quæ difficillime præcauentur*. Hence it is, that for a servant to rob his master is in more cases capital than for a stranger. If a servant kills his master, it is a species of treason; in another it is only murder. To steal a handkerchief, or other trifle of above the value of twelvepence, privately from one's person, is made capital; but to carry off a load of corn from an open field, though of fifty times greater value, is punished with transportation only. And in the island of Man this rule was formerly carried so far, that to take away an horse or an ox was there no felony, but a trespass, because of the difficulty in that little territory to conceal them or carry them off: but to steal a pig or a fowl, which is easily done, was a capital misdemeanour, and the offender was punished with death.

Lastly, as a conclusion to the whole, we may observe, that punishments of unreasonable severity, especially when indiscriminately inflicted, have less effect in preventing crimes, and amending the manners of a people, than such as are more merciful in general, yet properly intermixed with due distinctions of severity.

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It is the sentiment of an ingenious writer, who seems to have well studied the springs of human action, that crimes are more effectually prevented by the certainty than by the severity of punishment; for the excessive severity of laws (says Montesquieu) hinders their execution. When the punishment surpasses all measure, the public will frequently prefer impunity to it. Thus also the statute 1 Mar. st. 1. c. 1. recites in its preamble, "that the state of every king consists more assuredly in the love of the subject towards their prince, than in the dread of laws made with rigorous pains; and that laws made for the preservation of the commonwealth without great penalties, are more often obeyed and kept than laws made with extreme punishments." Happy had it been for the nation if the subsequent practice of that deluded princess in matters of religion, had been correspondent to these sentiments of herself and parliament in matters of state and government! We may further observe, that sanguinary laws are a bad symptom of the distemper of any state, or at least of its weak constitution. The laws of the Roman kings, and the twelve tables of the *decemviri*, were full of cruel punishments: the Porcian law, which exempted all citizens from sentence of death, silently abrogated them all. In this period the republic flourished: under the emperors severe punishments were revived, and then the empire fell.

It is, moreover, absurd and impolitic to apply the same punishment to crimes of different malignity. A multitude of sanguinary laws (besides the doubt that may be entertained concerning the right of making them) do likewise prove a manifest defect either in the wisdom of the legislative, or the strength of the executive power. It is a kind of quackery in government, and argues a want of solid skill, to apply the same universal remedy, the *ultimum supplicium*, to every case of difficulty. It is, it must be owned, much easier to extirpate than to amend mankind; yet that magistrate must be esteemed both a weak and a cruel surgeon, who cuts off every limb which through ignorance or indolence he will not attempt to cure. It has been therefore ingeniously proposed, that in every state a scale of crimes should be formed, with a corresponding scale of punishments, descending from the greatest to the least. But if that be too romantic an idea, yet at least a wise legislator will mark the principal divisions, and not assign penalties of the first degree to offences of an inferior rank. Where men see no distinction made in the nature and gradations of punishment, the generality will be led to conclude there is no distinction in the guilt. Thus in France the punishment of robbery, either with or without murder, is the same: hence it is, that though perhaps they are therefore subject to fewer robberies, yet they never rob but they also murder. In China murderers are cut to pieces, and robbers not: hence in that country they never murder on the highway, though they often rob. And in Britain, besides the additional terrors of a speedy execution, and a subsequent exposure or dissection, robbers

(A) Thus Demosthenes (in his oration against Midias) finely works up the aggravations of the insults he had received. "I was abused (says he) by my enemy, in cold blood, out of malice, not by heat of wine, in the morning, publicly, before strangers as well as citizens; and that in the temple, whither the duty of my office called me."

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Yet though in this instance we may glory in the wisdom of our law, we shall find it more difficult to justify the frequency of capital punishment to be found therein; inflicted (perhaps inattentively) by a multitude of successive independent statutes, upon crimes very different in their natures. It is a melancholy truth, that among the variety of actions which men are daily liable to commit, no less than 160 have been declared by act of parliament to be felonies without benefit of clergy; or, in other words, to be worthy of instant death. So dreadful a list, instead of diminishing, increases the number of offenders. The injured, through compassion, will often forbear to prosecute; juries, through compassion, will sometimes forget their oaths, and either acquit the guilty or mitigate the nature of the offence; and judges, through compassion, will respite one half of the convicts, and recommend them to the royal mercy. Among so many chances of escaping, the needy and hardened offender overlooks the multitude that suffer: he boldly engages in some desperate attempt to relieve his wants or supply his vices; and if, unexpectedly the hand of justice overtakes him, he deems himself peculiarly unfortunate in falling at last a sacrifice to those laws which long impunity has taught him to contemn.

As to the trials and mode of punishment, see **ARRAIGNMENT**; **TRIAL**, and the references therefrom; **CONVICTION**; **JUDGMENT**; **ATTAINDER**; **CORRUPTION of Blood**; **FORFEITURE**; **EXECUTION**; the several *Crimes* under their respective names; and **LAW**, Part II. cxxii. et seq. and Part III. clxxxvi.

Persons capable or incapable of committing CRIMES; or (which is all one) of suffering the censures of the law upon the commission of forbidden acts.

All the several pleas and excuses which protect the committer of a forbidden act from the punishment which is otherwise annexed thereto, may be reduced to this single consideration, the want or defect of *will*. An involuntary act, as it has no claim to merit, so neither can it induce any guilt: the concurrence of the will, when it has its choice either to do or to avoid the fact in question, being the only thing that renders human actions either praiseworthy or culpable. Indeed, to make a complete crime, cognizable by human laws, there must be both a will and an act. For though, *in foro conscientie*, a fixed design or will to do an unlawful act is almost as heinous as the commission of it; yet as no temporal tribunal can search the heart, or fathom the intentions of the mind, otherwise than as they are demonstrated by outward actions, it therefore cannot punish for what it cannot know. For which reason, in all temporal jurisdictions, an *overt* act, or some open evidence of an intended crime, is necessary in order to demonstrate the depravity of the will, before the man is liable to punishment. And as a vitious will without a vitious act is no civil crime; so, on the other hand, an unwarrantable act without a vitious will is no crime at all. So that to constitute a crime against human laws, there must be, first, a vitious will; and, secondly, an unlawful act consequent upon such vitious will.

Now there are three cases in which the will does not join with the act: 1. When there is a defect of understanding. For where there is no discernment, there is no choice; and where there is no choice, there can be no act of the will, which is nothing else but a determination of one's choice to do or to abstain from a particular action: he, therefore, that has no understanding, can have no will to guide his conduct. 2. Where there is understanding and will sufficient residing in the party, but not called forth and exerted at the time of the action done; which is the case of all offences committed by chance or ignorance. Here the will sits neuter, and neither concurs with the act nor disagrees to it. 3. Where the action is constrained by some outward force and violence. Here the will counteracts the deed; and is so far from concurring with, that it loaths and disagrees to what the man is obliged to perform. Infancy, idiocy, lunacy, and intoxication, fall under the first class; misfortune and ignorance may be referred to the second; and compulsion or necessity may properly rank in the third. See **INFANCY**, **IDIOCY**, **DRUNKENNESS**, **MISFORTUNE**, **IGNORANCE**, **NECESSITY**.

CRIMEA, or **CRIM TARIARY**, anciently the *Chersonesus Taurica*, a peninsula situated directly to the south of St Petersburg, between the 51st and 55th degrees of latitude, and in 46 of longitude. Its southern and western coasts lie in the Euxine, its northern and eastern in the Rotten Sea and the Palus Mæotis. It is joined, however, to the continent on the north by a small neck of land not more than six miles broad. This peninsula has been known more than 3000 years since the first naval expedition of the Argonauts; a story, though mixed with fable, yet well founded in its principal facts. The mountainous parts were inhabited by the Tauri, probably a colony of Scythians; and its coasts on the west, the east, and the south, by Greeks. The Scythians were driven out by Mithridates; the Greeks by the Sarmatians; and these again by the Alani and Goths, a northern hord of Scythians. The Hungarians, the Cossacks, and Tartars, succeeded in their turn; while the Genoese, in the 12th century, held a temporary and precarious possession of the seaports, which they were obliged to yield to the Turks in 1475. At the peace of 1774, the Tartars of the Crimea were declared independent; and in 1783, this peninsula was united to the Russian empire.

From the above mentioned isthmus, on which is built the fortress of Or-kapi or Perekop, to the first rising of the hill at Karatubasar, the country is one continued flat: elevating itself, by an easy gradation, to the summit of the hill, which forms the south side of the peninsula and the shore of the Euxine Sea. The surface of the soil is almost all of one kind, a reddish-grey loam; on digging, you find it more or less mixed with a black earth, and the hills abound with marble. The whole flat, from Perekop to the river Salgir, which may be an extent of 80 miles, is full of salt marshes and lakes; from whence the neighbouring Russian governments, as well as the Crim itself, Anatolia, and Bessarabia, are supplied with salt. The most remarkable of these lakes are five in number: Koslof and Keffa, so called after the towns near which they lie, are very large; the Tulla, about 15 versts from Perekop, on the road from Keffa; the Red Lake,

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Crimea. not far from the last mentioned ; and the Black Lake. Besides these, there are many other swamps and lakes, from whence the inhabitants get salt for their own consumption.

The greatest part of the peninsula is so level that a man may travel over the half of it without meeting with a river, or even the smallest brook. The inhabitants of the villages, therefore, make a pit in the yard of every house for receiving the rain or the water that runs from the hills. The whole tract is bare of every kind of tree. Not a bush or a bramble is to be seen, and the herbage is extremely scanty. This, however, does not proceed so much from the unfruitfulness of the place, as from the vast herds of cattle which rove the whole year long from place to place ; by which means all the grass in spring, summer, or autumn, no sooner appears through the long drought which succeeds the rainy season, but it is immediately devoured or trodden down. The universal prevalence of this custom of keeping cattle to wander up and down, joined to the slothfulness of the Tartars, with their inaptitude and aversion to agriculture, is the reason of the total neglect of that science here. Otherwise, were the land divided into portions and properly managed, there would be a sufficiency for the cattle, and the rest would be fruitful in corn and grain. By this means alone the Crim would become a fertile country, and no natural defect would be found in opposition to the welfare of its inhabitants. The truth of this is well known by their neighbours ; where, of a hundred Tartars, one perhaps follows husbandry, who finds it to answer to so much profit, that he has not only enough for his own use, but wherewith to sell to the ninety-nine.

This peninsula, which is indeed but a little district, yet, from the many advantages conferred upon it by nature, may be esteemed peculiarly rich, is divided into the hilly country and the flat. The latter, which extends from Perekop to Koslof and the river Bulganak to Karasubasar, Keffa, and Yenicali, is strewn here and there with little Tartar villages, maintained by cattle and the produce of the salt lakes. The highlands, or hilly country, form the southern part of the Crim, along the straight coast of the Black Sea, and stretching westward, in a right line from Keffa, to the vicinity of Belbek. These hills are composed of layers of chalk ; which, in the headlands and promontories, is soft, but more inland quite hard. The strata of the highest hills are like those of the promontories, and take a direction from north to south. These qualities of the strata prevail not throughout the whole hills, but only in the large and lofty ones ; such as the two that rise near Karasubasar, and one very high by Achmetshed, which bears the name of Aktau. The other smaller hills lie scattered and dispersed, but take the names of the greater ones, to which they seem to belong ; as the great ridge of Caucasus does, which extends beyond the Donau, through Bulgaria, and are named *Palkans*.

All accounts agree in this, that nature has favoured these highland countries with great advantages, and blessed them with abundance of all things. A number of springs that flow from the mountains form the two considerable rivers Salgir and Karasu, which run into the Rotten Sea. The former, which takes its rise from a cavern in a high hill near Achmetshed, falls

straight into the plain below, and waters a great part of the Crim ; the other, commencing behind Karasubasar, falls likewise into the plain, and mingles with the Salgir. There are many other little rivers and streams, which run eastward, and either join the two forementioned, or fall immediately into the Rotten Sea. All the streams, for the whole length of the hills, which begin at Keffa, and proceed in a chain of the same height, flow to the north or the north-east, excepting the one behind Achmetshed, where the great mountain Aktau is, which falls on the other side ; this river, rising on the northern side of this mountain, flows, as was before observed, towards the north-east, to the Salgir and the Rotten Sea ; as likewise those which spring on the western side, take their course westward to the Bulganak, and thence straight to the Black Sea ; which also receives all the other little rivers that arise from these hills, as the Anima, the Katscha, the Belbek, the Kasulkioi, &c.

The mountains are well covered with woods fit for the purpose of ship-building, and contain plenty of wild beasts. The valleys consist of fine arable land ; on the sides of the hills grow corn and vines in great abundance, and the earth is rich in mines. But these mountaineers are as careless and negligent as the inhabitants of the deserts ; slighting all these advantages ; and, like their brethren of the lowlands, are sufficiently happy if they are in possession of a fat sheep and as much bread as serves them to eat.

About 20 years ago this peninsula was uncommonly full of inhabitants and wealth. They reckoned at that time at least 1200 villages ; but, from the late troubles in the Crim, it has lost more than a third part of its inhabitants ; and now, wherever we turn, we meet with the ruins of large villages and dwellings. The people were composed of various nations, who lived together under the Tartars in the most unbounded freedom ; but in the late Turkish war they either put themselves under the Russian government, and were transferred to that empire, or fled to Abcasia and the Tschirkassian hills.

The houses in the towns, as well as the villages, are for the most part of square timbers, having the interstices filled with brick work, if the possessor can afford it, and those of the poorer sort with turf. The chinks and crannies are made tight with clay, and then plastered within and without. The covering is commonly either of brick or of turfs. Only the medcheds, minarets, and baths, are of stone, and a few extremely handsome of marble. They have chimnies in the chambers, at which they likewise dress their victuals ; but stoves in the Russian manner none. In extreme frosts a great iron pan of charcoal is brought into the room, for making it comfortable. Their custom is, to sit upon low sofas, with Turkish coverings and cushions, or upon a clay seat, somewhat raised above the earth, and spread with a carpet. In these rooms are cupboards and chests, often covered with cushions, to serve as seats ; in which they keep their gold, silver, and valuables. Such are the inner apartments or harams, in which the women generally live ; the others are not so fine. These contain only a sofa, or a bank of clay covered with a carpet, as in the chimney rooms.

The rich Tartars, and their nobility or murzas (excepting

Crimea.

Crimea. cepting only such as are about the person of the khan), commonly dwell all the year round in the country, coming only to town when they have business there. There are but few towns in the Crim, at least in comparison of its former population. The Krimskoi Tartars have no tribunal of justice, controversies and quarrels being seldom heard of among them; and if a dispute should arise, it is immediately settled by an appeal to the Koran. Little differences in the villages inevitably happening about property, or other matters not taken notice of in that code, are amicably adjusted by the elderman or abeses; but in the towns all weighty concerns, excepting the single case of murder or homicide, are brought before the kaimakan, or commandant, who settles them absolutely without appeal.

The residence of the khans of the Crimea was formerly Bachtshifarai, in which city they held their seat for upwards of 200 years. They went thither from Eski-Crim, or Old Crim, the capital city of the Genoese, upon Bengli Ghireikhan's plundering the sea-ports, and driving all the Genoese from their stations. Before Eski-Crim, and indeed upon the first coming of the Tartars into this peninsula, the sovereign residence was at Koslof; but here they remained not long. Under the late khan Shagin Ghirei it was held at Keffa, the ancient Theodosia; which is 10 miles distant from Eski Crim, said to be the Cimmerium of the ancients.

The principal cities or towns of the Crimea are: 1. *Bachtshi Sarai*, an extensive and wealthy city, lying in a vale between two high mountains, and surrounded by a number of gardens. From this circumstance it has its name; *bachtshi* signifying in the Tartarian language "a garden," and *sarai* "a palace." It formerly contained 3000 houses, and many sumptuous medscheds. The palace of the khans with its gardens and ponds, were much improved under the government of Khan Kerim Girei, under whose government the last Turkish war took its rise. In this palace is the burial place of all the khans of Crimea, wherein all the khans that have reigned here lie interred. The fine Krimskoi vines, with their large cluster of grapes, grow in great plenty all about this town, and a profusion of other delicious fruits, from whence the neighbouring parts of Russia are supplied. 2. *Keffa*, the present residence of the khans, stands on the shore of a large harbour in the Black Sea. Its site is on the declivity of a long ridge of mountains; and is mantled by a stone wall, fortified by several towers, and encompassed by a deep ditch. On both sides of the city formerly stood castles, and in the middle of them a lofty turret for the purpose of giving signals by fire. Before the wall were wide extended suburbs; containing among other considerable buildings, medscheds, churches for the Greek and Armenian worship; of all which now only the vestiges remain. The castles and towers lie also in ruins; and not one third part of the houses of the city itself are now remaining, and those chiefly built of materials taken from the aforesaid ruins. They formerly reckoned Keffa to contain 4000 houses, including the suburbs, with a number of medscheds and Christian churches; but this number has been much diminished by the last Turkish war. The present inhabitants consist mostly of Tartars; who carry on a trade by no means inconsiderable, in commodities brought

from Turkey. The late khan, an intelligent and enlightened personage, made this city the place of his residence, and brought hither the mint from Bachtshifarai, built himself a palace, and erected a divan, which assembled three times a-week, and the fourth time was held in the palace of the khan, in which he always personally assisted. Here is also a customhouse, the management of which is farmed out. 3. *Karafubasar*, likewise a very rich city in former times, stands at the beginning of the mountains, about half way between Keffa and Bachtshifarai. It is a large trading town; contains a considerable number of dwelling-houses and medscheds, but the greatest part of them in decay, and many fine gardens. This place is the most famous in all the Crim for its trade in horses, and has a market once a-week for that article of traffic; to which are likewise brought great numbers of buffaloes, oxen, cows, camels, and sheep for sale. Near this city flows one of the principal rivers of the Crim, called the *Karasu*, that is, the Black Water. Of this river they have an opinion in Russia, that one part of it flows upwards for several versts together. But this is in some sort true, not only of the *Karasu*, but of all the rivers of the Crim that have a strong current. The Tartars, who dwell either in the valleys or on the sides of the mountains (frequently without considering whether the place is supplied with water or not), dig canals either from the source of the next river, or from that part of it which lies nearest to their particular habitation, about an arshine in breadth, for their gardens and domestic use. From these they cut smaller ones through the villages, to supply them with water, and not unfrequently to drive a mill. These canals appear, to the imagination of the common people, to run in a contrary direction to the current of the river; and in fact these canals do lie, in many places for a verst in length, some fathoms higher than the level of the stream from whence they are supplied. 4. *Achmetsted*, a pretty large city not far from Bachtshifarai; now made the capital of all the Crimea by the regulations of Prince Potemkin in the summer of 1785. 5. *Koslof*, formerly a very considerable trading town, lies on the western side of the peninsula, in a bay of the Black Sea; which, as well as the found at Keffa, might rather be called a road than a haven. This was the first town the Tartars possessed themselves of on their first entrance into the Crim, and established a customhouse therein, after the example of the Genoese, which is now farmed out.

The other remarkable places are, *Sudak*, which is built on the hills upon the shore of the Black Sea, at the south side of the peninsula, and is famous for its excellent wine, resembling Champagne both in colour and strength; *Alushti*, on the same side, among the hills on the sea shore; *Baluklava*, where there is a fine harbour, and perhaps the only one on the Black Sea, containing ample room for a very good fleet; *Inkerman* may be noticed for its commodious though not very large haven, called *Achtiar*; and *Mangup*, the old Chersonesus: which were all formerly very flourishing towns; but are now either in ruins, or dwindled into small villages.

All these places, so long as the Genoese remained masters of the Crim, were well fortified; but the Tartars, in taking them, demolished all the works. While they

Crimea || they were under the Turks, they left the fortresses of
Crimum || Keffa, Kertsch, and Koslof, and built the fort Arabat
 on the neck of land between the sea of Azof (or Palus
 Mæotis) and the Rotten Sea, where Perekop also is.

In *Arabat* are but few houses; but here the warlike
 stores of the khans were kept.—*Perekop*, called by the
 Turks *Or-kapi*, is a fortress of moderate strength;
 standing about the middle of the neck of land that
 joins the peninsula with the continent. This isthmus,
 which is at least six miles broad, is cut through with a
 wide and deep ditch lined with stone, and reaches from
 the Black to the Rotten Sea. This was formerly kept
 without water, but now is filled from both seas. On
 the Crimean side a high wall of earth runs the whole
 length of it, straight from one sea to the other. The
 people pass over the ditch by means of a drawbridge,
 and through the wall by a gateway. The walls of the
 fortress are some fathoms from the road side; of which
 the ruins are only now discernible, namely, large brick
 houses, with a number of bomb shells and cannon balls
 about them, which were formerly kept in the fortress.
 At least two miles from this is the pretty populous but
 miserable place, which was probably the town to which
 this fort belonged. Near the gate is a customhouse,
 where all imports and exports pay duty.

This peninsula was formerly extremely populous; the
 number of its inhabitants, in Tartars, Turks, Greeks,
 Armenians, Jews, and others, amounted to above
 200,000 men. Since that, however, the greatest part
 of the Christians have betaken themselves to the other
 parts of the Russian empire, particularly the govern-
 ment of Azof; and many other inhabitants, particu-
 larly Tartars, have gone to Taman and Abchasia; so
 that the present population of the Crim cannot now
 be reckoned at more than 70,000 men at most.

The Crim was heretofore divided into 24 kaduliks
 or districts; namely, Yenikali, Kertsch, Arabat, Ef-
 ki-krim, Keffa, Karasubasar, Sudak, Achmetsched,
 Yalof, Bachtschisarai, Balaklava, Mangup, Inkerman,
 Koslof, Or, Mansur, Tarkan, Sivasch, Tschongar,
 Sarubulat, Barun, Argun, Sidschugut, and Schirin.
 Several of these districts are named after the town
 or village wherein the murza, their governor, dwells;
 and many of them are at present in a state of total
 decay.

CRIMEN FALSI. See *FALSI Crimen*.

CRIMSON, one of the seven red colours of the
 dyes. See *DYEING*.

CRINGLE, a small hole made in the bolt-rope of
 a sail, by intertwisting one of the divisions of a rope,
 called a *strand*, alternately round itself and through
 the *strands* of the bolt rope, till it becomes threefold,
 and assumes the shape of a wreath or ring. The use
 of the cringle is generally to contain the end of some
 rope, which is fastened thereto for the purpose of
 drawing up the sail to its yard, or of extending the
 skirts by the means of *bridles*, to stand upon a side
 wind. The word seems to be derived from *krinckelen*
 (Belg.) "to run into twists."

CRINUM, ASPHODEL-LILY: A genus of the mo-
 nogynia order, belonging to the hexandria class of
 plants; and in the natural method ranking under the
 9th order, *Spathaceæ*. The corolla is funnel shaped,
 monopetalous, and sexpartite, with three alternate
 segments having hooked appendages; the germen is

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covered in the bottom of the corolla, the stamina
 standing asunder. They are very beautiful green-
 house plants, rising two or three feet high, each of
 them crowned by a large umbellate cluster of spa-
 thaceous, monopetalous, long funnel shaped flowers,
 blue, white, or striped, having a very fragrant smell.
 They are propagated by off-sets.

CRISIS, in medicine, is used in different senses, both
 by the ancient and modern physicians. With some it
 means frequently no more than the excretion of any
 noxious substance from the body. Others take the
 word for a secretion of the noxious humours made in
 a fever. Others use it for the critical motion itself;
 and Galen defines a crisis in fevers, a sudden and in-
 stantaneous change, either for the better or the worse,
 productive of recovery or death.

CRISPIN and CRISPIANUS, two legendary saints,
 whose festival, as marked in the kalendar, is on the
 25th of October. According to the legend, they
 were brethren, born at Rome; from whence they tra-
 velled to Soissons in France, about the year 303, to
 propagate the Christian religion; and because they
 would not be chargeable to others for their mainte-
 nance, they exercised the trade of shoemakers; but
 the governor of the town discovering them to be Chri-
 stians, ordered them to be beheaded. From which
 time the shoemakers made choice of them for their
 tutelar saints.

CRISTÆ, in surgery, a term for certain excres-
 cences about the anus and pudenda. See *MEDICINE-
 Index*.

CRISTA GALLI, in anatomy, an eminence in the
 middle of the *os ethmoides*, advancing within the cavity
 of the cranium; and to which is fastened that part of
 the dura mater which divides the brain, called *falk*.
 It has its name from its figure, which resembles that
 of a cock's comb. In adults, this process appears of
 a piece with the *septum narium*.

CRITERION, or **CRITERIUM**, a standard by
 which propositions and opinions are compared, in
 order to discover their truth or falsehood.

CRITHE, in surgery, commonly called the *stye*, is
 a sort of tubercle that grows on the eye-lids. When
 small, it is seated on the edge of the eye-lid; but when
 large, it spreads further. When they do not suppu-
 rate, they become wens. They are apt to disappear
 and return. If there is inflammation, endeavour to
 suppurate it with the white bread poultice: if it is
 hard, destroy it with a mixture of equal parts of hog's
 lard and quicksilver. If the lower eye-lid is affected,
 the tumor is more frequently on its inside; and then
 it is best to dissect it, or to make way for it outwardly
 by applying a caustic on the skin just upon it.

CRITHMUM, SAMPHIRE: A genus of the digy-
 nia order, belonging to the pentandria class of plants;
 and in the natural method ranking under the 45th or-
 der, *Umbellatæ*. The fruit is oval and compressed, the
 florets equal. There are two species, the principal of
 which is the *maritimum*, or common maritime sam-
 phire. It hath a fibrous penetrating root; thick, suc-
 culent, branchy stalks rising two feet high; winged
 fleshy leaves, consisting of many small spear-shaped
 lobes; with round yellow flowers growing in umbels.
 It is produced naturally on the sea-coasts among the
 gravel and rocks. Its leaves are an excellent pickle
 used

Critho-
mancy.
||
Criticism.

used for sauces, and are by many eaten raw in salads. It is of a saltish relish, palatable, and comfortable to the stomach. It is not very easily preserved in gardens. It must be sown on gravelly or rocky ground, half an inch deep; in which situation the plants will come up, and last some years. The leaves of this plant are said also to be aperient and diuretic.

CRITHOMANCY, a kind of divination, performed by considering the dough or matter of the cakes offered in sacrifice, and the meal strewed over the victims to be killed. Hence, in regard they ordinarily used barley-meal in these ceremonies, this kind of divination was called *crithomancy*, from *κριθη*, *barley*, and *μαντια*, *divination*.

CRITIAS, one of the 30 tyrants set over Athens by the Spartans. He was eloquent and well bred, but of dangerous principles. He cruelly persecuted his enemies and put them to death. He was killed about 400 years before the Augustan age, in a battle against those citizens whom his oppression had banished. He had been among the disciples of Socrates, and had written elegies and other compositions, of which some fragments remain.

CRITICAL DAYS and SYMPTOMS, among physicians, are certain days and symptoms in the course of acute diseases, which indicate the patient's state, and determine him either to recover or grow worse. See *MEDICINE-Index*.

CRITICISM, the art of judging with propriety concerning any object or combination of objects. But, in a more limited sense, the science of criticism is confined to the fine arts. The principles of the fine arts are best unfolded by studying the sensitive part of our nature, and by learning what objects are naturally agreeable and what are naturally disagreeable. The man who aspires to be a critic in these arts, must pierce still deeper: he must clearly perceive what objects are lofty, what low, what are proper or improper, what are manly, and what are mean or trivial. Hence a foundation for judging of taste, and for reasoning upon it: where it is conformable to principles, we can pronounce with certainty that it is correct; otherwise, that it is incorrect, and perhaps whimsical. Thus the fine arts, like morals, become a rational science; and, like morals, may be cultivated to a high degree of refinement.

Manifold are the advantages of criticism, when thus studied as a rational science. In the first place, a thorough acquaintance with the principles of the fine arts redoubles the entertainment these arts afford. To the man who resigns himself entirely to sentiment or feeling, without interposing any sort of judgment, poetry, music, painting, are mere pastime; in the prime of life, indeed, they are delightful, being supported by the force of novelty and the heat of imagination: but they lose their relish gradually with their novelty; and are generally neglected in the maturity of life, which disposes to more serious and more important occupations. To those who deal in criticism as a regular science, governed by just principles, and giving scope to judgment as well as to fancy, the fine arts are a favourite entertainment; and in old age maintain that relish which they produce in the morning of life.

In the next place, a philosophical inquiry into the

principles of the fine arts, inures the reflecting mind to the most enticing sort of logic: the practice of reasoning upon subjects so agreeable tends to a habit; and a habit strengthening the reasoning faculties, prepares the mind for entering into subjects more difficult and abstract. To have, in this respect, a just conception of the importance of criticism, we need but reflect upon the common method of education; which, after some years spent in acquiring languages, hurries us, without the least preparatory discipline, into the most profound philosophy: a more effectual method to alienate the tender mind from abstract science, is beyond the reach of invention: and accordingly, with respect to such speculations, the bulk of our youth contract a sort of hobgoblin terror, which is seldom, if ever, subdued. Those who apply to the arts are trained in a very different manner: they are led, step by step, from the easier parts of the operation to what are more difficult; and are not permitted to make a new motion till they be perfected in those which regularly precede it. The science of criticism appears then to be a middle link, connecting the different parts of education into a regular chain. This science furnisheth an inviting opportunity to exercise the judgment: we delight to reason upon subjects that are equally pleasant and familiar; we proceed gradually from the simpler to the more involved cases: and in a due course of discipline, custom, which improves all our faculties, bestows acuteness upon those of reason, sufficient to unravel all the intricacies of philosophy.

Nor ought it to be overlooked, that the reasonings employed upon the fine arts are of the same kind with those which regulate our conduct. Mathematical and metaphysical reasonings have no tendency to improve social intercourse; nor are they applicable to the common affairs of life: but a just taste in the fine arts, derived from rational principles, furnishes elegant subjects for conversation, and prepares us finely for acting in the social state with dignity and propriety.

The science of rational criticism tends to improve the heart not less than the understanding. It tends, in the first place, to moderate the selfish affections: by sweetening and harmonizing the temper, it is a strong antidote to the turbulence of passion and violence of pursuit; it procures to a man so much mental enjoyment, that, in order to be occupied, he is not tempted in youth to precipitate into hunting, gaming, drinking; nor in middle age, to deliver himself over to ambition; nor in old age, to avarice. Pride and envy, two disgustful passions, find in the constitution no enemy more formidable than a delicate and discerning taste: the man upon whom nature and culture have bestowed this blessing, feels great delight in the virtuous dispositions and actions of others: he loves to cherish them, and to publish them to the world: faults and failings, it is true, are to him not less obvious; but these he avoids, or removes out of sight, because they give him pain. On the other hand, a man void of taste, upon whom the most striking beauties make but a faint impression, has no joy but in gratifying his pride or envy by the discovery of errors and blemishes. In a word, there may be other passions, which, for a season, disturb the peace of society more than those mentioned: but no other passion is so unwearied an antagonist.

Criticism || **Crizzelling.** gonist to the sweets of social intercourse: these passions, tending assiduously to their gratification, put a man perpetually in opposition to others; and dispose him more to relish bad than good qualities, even in a companion. How different that disposition of mind, where every virtue in a companion or neighbour, is, by refinement of taste, set in its strongest light; and defects or blemishes, natural to all, are suppressed, or kept out of view!

In the next place, delicacy of taste tends not less to invigorate the social affections than to moderate those that are selfish. To be convinced of this tendency, we need only reflect, that delicacy of taste necessarily heightens our sensibility of pain and pleasure, and of course our sympathy, which is the capital branch of every social passion. Sympathy, in particular, invites a communication of joys and sorrows, hopes and fears: such exercise, soothing and satisfactory in itself, is necessarily productive of mutual good-will and affection.

One other advantage of rational criticism is referred to the last place, being of all the most important; which is, that it is a great support to morality. No occupation attaches a man more to his duty than that of cultivating a taste in the fine arts: a just relish of what is beautiful, proper, elegant, and ornamental, in writing or painting, in architecture or gardening, is a fine preparation for the same just relish of these qualities in character and behaviour. To the man who has acquired a taste so acute and accomplished, every action wrong or improper must be highly disgusting: if, in any instance the overbearing power of passion sway him from his duty, he returns to it upon the first reflection, with redoubled resolution never to be swayed a second time: he has now an additional motive to virtue, a conviction derived from experience, that happiness depends on regularity and order, and that a disregard to justice or propriety never fails to be punished with shame and remorse.

For the rules of criticism applicable to the fine arts, and derived from human nature, see ARCHITECTURE, BEAUTY, CONGRUITY, COMPARISON, GRANDEUR, &c.

CRITO, an Athenian philosopher, flourished 400 years before Christ. He was one of the most zealous disciples of Socrates, and supplied him with whatever he wanted. He had several scholars who proved great men, and he composed some dialogues which are lost.

CRITOLAUS, a citizen of Tegea in Arcadia. He with two brothers fought against the three sons of Demonstratus of Pheneus, to put an end to a long war between their respective nations. The brothers of Critolaus were both killed, and he alone remained to withstand his three bold antagonists. He conquered them; and when at his return his sister deplored the death of one of his antagonists, to whom she was betrothed, he killed her in a fit of resentment. The offence deserved capital punishment; but he was pardoned on account of the services he had rendered his country. He was afterwards general of the Achæans; and it is said that he poisoned himself because he had been conquered at Thermopylæ by the Romans, about 146 years before the Augustan age.

CRIZZELLING, in the glass trade, a kind of roughness arising on the surface of some kinds of glass.

This was the fault of a peculiar sort of glass made in Oxfordshire and some other places, of black flints, a crystallized sand, and a large quantity of nitre, tartar, and borax. The glass thus made is very beautiful, but, from the too great quantities of the salts in the mixture, is subject to crizzel; that is, the salts in the mixture, from their too great proportion, are subject either from the adventitious nitre of the air from without, or from warm liquors put in them, to be either increased in quantity or dissolved, and thereby induce a scabrities or roughness irrecoverably clouding the transparency of the glass. This is what was called *crizzelling*; but by using an Italian white pebble, and abating the proportions of the salts, the manufacture is now carried on with advantage, and the glass made with these salts is whiter than the finest Venetian, and is subject to no faults.

CROATIA, a part of the ancient Illyricum, is bounded on the east by Sclavonia and Bosnia, on the south and south-west by Morlachia, and on the north by the Drave, which separates it from a part of Sclavonia. It is about 80 miles in length and 70 in breadth, and was once divided between the Hungarians and Turks; but now the greatest part of it is subject to the house of Austria. The Croats derive their origin from the Sclavi; and their language is a dialect of the Sclavonian, approaching very near to that of the Poles. The country is divided into two parts, viz. that under, and that beyond, the Save. In the late wars between the empress queen and the king of Prussia, no less than 50,000 men were raised out of this small territory. Both horse and foot are good soldiers, especially the former. The soil, where cultivated, is fruitful in wine and oil, &c. but being a frontier country, and much exposed to inroads, it is not so well cultivated as otherwise it might be.

CROCODILE, in zoology. See LACERTA.

Fossile CROCODILE, one of the greatest curiosities in the fossile world which the late ages have produced. It is the skeleton of a large crocodile, almost entire, found at a great depth under ground, bedded in stone. This was in the possession of Linkius, who wrote many pieces of natural history, and particularly an accurate description of this curious fossile. It was found in the side of a large mountain in the midland part of Germany, and in a stratum of black fossile stone, somewhat like our common slate, but of a coarser texture, the same with that in which the fossile fish in many parts of the world are found. This skeleton had the back and ribs very plain, and was of a much deeper black than the rest of the stone; as is also the case in the fossile fishes which are preserved in this manner. The part of the stone where the head lay was not found; this being broken off just at the shoulders, but that irregularly; so that, in one place, a part of the back of the head was visible in its natural form. The two shoulder-bones were very fair, and three of the feet were well preserved; the legs were of their natural shape and size, and the feet preserved even to the extremities of the five toes of each.

CROCODILE (*crocodilus*), in rhetoric, a captious and sophistical kind of argumentation, contrived to seduce the unwary, and draw them speciously into a snare. It has its name crocodile from the following occasion, invented by the poets. A poor woman, begging a cro-

Crocus.

codile that had caught her son walking by the river-side to spare and restore him, was answered, that he would restore him, provided she should give a true answer to a question he should propose: the question was, Will I restore thy son or not? To this the poor woman, suspecting a deceit, sorrowfully answered, Thou wilt not: and demanded to have him restored, because she had answered truly. Thou lyest, says the crocodile; for if I restore him, thou hast not answered truly: I cannot therefore restore him without making thy answer false. Under this head may be reduced the propositions called *mentientes* or *insolubiles*; which destroy themselves. Such is that of the Cretan poet: *Omnes ad unum Cretenses semper mentiuntur*: "All the Cretans, to a man, always lie." Either, then, the poets lies when he asserts that the Cretans all lie, or the Cretans do not all lie.

CROCUS, SAFFRON: A genus of the monogymia order, belonging to the triandria class of plants; and in the natural method ranking under the 6th order, *Ensatæ*. The corolla is sexpartite and equal; the stigmata convoluted or rolled spirally inwards. Modern botanists allow only one species of this genus, which, however, comprehends many beautiful varieties. This hath a small roundish, brown, bulbous root, compressed at the bottom. Directly from the root issue many long narrow leaves, of a deep green colour; and amidst them the flowers all protruded from a thin univalvular radical spatha; the tube of the flower is long, standing on the root, and serving as a footstalk to the limb or upper part, which is erect, sixparted, widens gradually upward, and grows from about three to five or six inches high. The varieties of this species may be divided into two classes, the autumnal and spring flowering.

The varieties of the first are the *crocus officinalis*, or saffron of the shops; for the properties of which, and its cultivation for sale, see the article **SAFFRON**. This hath a long tubed bluish purple flower, with three stigmata of a fine golden colour. Other varieties are the autumnal small blue crocus; deep blue, sky blue, whitish blue, many-flowered whitish blue, purple, large rush-leaved purple, autumnal white crocus, and autumnal yellow crocus. The varieties of the vernal crocus are, the small and large, and golden yellow crocuses, and the yellow black striped, the yellow purple striped and double cloth of gold ones; the white, white purple striped, white purple bottom, white black-striped, whitish cream-coloured, whitish ash-coloured, little narrow leaved white, and white blue-striped crocuses. Besides these there are a great many others of a blue and purple colour finely variegated.

The autumnal crocuses flower about the beginning of October, but never ripen their seeds in this country. They are very beautiful if sown in patches in the front of borders, or in beds by themselves, and very proper ornaments for gardens of every extent, as coming up at a time when most other flowers are on the decay. They grow freely in any kind of soil, and may be propagated by offsets. The vernal kinds flower in February, March, and April. They also are very ornamental, and are so hardy that they will grow almost any where. They are propagated by seeds, which the plants produce in plenty.

CROCUS, in chemistry, denotes any metal calcined to a red or deep yellow colour.

Crocus Metallorum, an emetic preparation of antimony and nitre. See **CHEMISTRY-Index**.

CRÆSUS, the last king of Lydia, remarkable for his riches, his conquests, his temporary prosperity, and the sad reverse of his fortune. He subdued the Phrygians, Mysians, Paphlagonians, Thracians, and Carians; amassed together immense riches; and became one of the most powerful and magnificent princes in the world. He drew the learned to his court, and took a pleasure in conversing with them. Thales of Miletus, Pittacus of Mitylene, Bias of Priene, Cleobulus of Lindus, and most of the other "wise men," as they are emphatically styled, who lived in that age, as well as Æsop the fabulist, and the elegant Greek poets of the times, were bountifully received at the court of Cræsus. There is still on record a memorable conversation between that prince and Solon, which seemed to predict the subsequent events of his reign, and which had a late but important influence on the character and fortune of the Lydian king. Cræsus having entertained his Athenian guest, according to the ancient fashion, for several days, before he asked him any questions, ostentatiously showed him the magnificence of his palace, and particularly the riches of his treasury. After all had been displayed to the best advantage, the king complimented Solon upon his curiosity and love of knowledge; and asked him, as a man who had seen many countries, and reflected with much judgment upon what he had seen, Whom of all men he esteemed most happy? By the particular occasion, as well as the triumphant air with which the question was proposed, the king made it evident that he expected flattery rather than information. But Solon's character had not been enervated by the debilitating air of a court; and he replied with a manly freedom, "Tellus, the Athenian." Cræsus, who had scarcely learned to distinguish, even in imagination, between wealth and happiness, inquired with a tone of surprise, why this preference to Tellus? "Tellus," rejoined Solon, "was not conspicuous for his riches or his grandeur, being only a simple citizen of Athens; but he was descended from parents who deserved the first honours of the republic. He was equally fortunate in his children, who obtained universal esteem by their probity, patriotism, and every useful quality of the mind or body; and as to himself, he died fighting gallantly in the service of his country, which his valour rendered victorious in a doubtful combat; on which account the Athenians buried him on the spot where he fell, and distinguished him by every honour which public gratitude can confer on illustrious merit."

Cræsus had little encouragement, after this answer, to ask Solon, in the second place, Whom, next to Tellus, he deemed most happy? Such, however, is the illusion of vanity, that he still ventured to make this demand; and still, as we are informed by the most circumstantial of historians, entertained hopes of being favourably answered. But Solon replied with the same freedom as before, "The brothers Cleobis and Biton; two youths of Argos, whose strength and address were crowned with repeated victory at the Olympic games; who deserved the affection of their parents, the gratitude of their country, the admiration of Greece; and

Cræsus.
Cræsus.

who,

Cræsus. who, having ended their lives with peculiar felicity, were commemorated by the most signal monuments of immortal fame." "And is the happiness of a king, then," said Cræsus, "so little regarded, O Grecian stranger! that you prefer to it the mean condition of an Athenian or Argive citizen?" The reply of Solon sufficiently justified his reputation for wisdom. "The life of man," said he, "consists of 70 years, which make 25,550 days; an immense number: yet in the longest life, the events of any one day will not be found exactly alike to those of another. The affairs of men are liable to perpetual vicissitudes: the Divinity who presides over our fate is envious of too much prosperity; and all human life, if not condemned to calamity, is at least liable to accident. Whoever has uninterruptedly enjoyed a prosperous tide of success may justly be called *fortunate*: but he cannot before his death be intitled to the epithet of *happy*."

The events which soon followed this conversation, prove how little satisfaction is derived from the possession of a throne. Victorious in war, unrivalled in wealth, supreme in power, Cræsus felt and acknowledged his unhappiness. The warmest affections of his soul centered in his son Atys, a youth of the most promising hopes, who had often fought and conquered by his side. The strength of his attachment was accompanied with an excess of paternal care, and the anxiety of his waking hours disturbed the tranquillity of his rest. He dreamed that his beloved son was slain by a dart; and the solicitude with which he watched his safety, preventing the youth from his usual occupations and amusements, and thereby rendering him too eager to enjoy them, most probably exposed him to the much-dreaded misfortune. Reluctantly permitted to engage in a party of hunting, the juvenile ardour of Atys, increased by the impatience of long restraint, made him neglect the precautions necessary in that manly amusement. He was slain by a dart aimed at a wild boar of monstrous size, which had long spread terror over the country of the Mysians. The weapon came from the hand of Adrastus, a Phrygian prince and fugitive, whom Cræsus had purified from the involuntary guilt of a brother's blood, and long distinguished by peculiar marks of bounty. To the grateful protection of the Phrygian, Cræsus recommended, at parting, the safety of his beloved son. A mournful procession of Lydians brought to Sardis the dead body of Atys. The ill-fated murderer followed behind. When they approached the royal presence, Adrastus stepped forward, and intreated Cræsus to put him to death; thinking life no longer to be endured after killing, first his own brother, and then the son of his benefactor. But the Lydian king, notwithstanding the excess of his affliction, acknowledged the innocence of Adrastus, and the power of fate. "Stranger, your action is blameless, being committed without design. I know that my son was destined to a premature death." Adrastus, though pardoned by Cræsus, could not pardon himself. When the mourners were removed, he privately returned, and perished by his own hand on the tomb of Atys.

Two years Cræsus remained disconsolate for the loss of his son; and might have continued to indulge his unavailing affliction during the remainder of life, had not the growing greatness of Persia, which threatened

the safety of his dominions, roused him from his dream of misery. (See *LYDIA*.)—He marched against Cyrus with a great army, but was defeated; and retreating to his capital Sardis, was there besieged. The city was taken by assault; and as a Persian soldier was going to kill Cræsus, that prince's only surviving son, who had hitherto been dumb, terrified at his danger, cried *Stop, soldier, and touch not Cræsus*. But though delivered by this extraordinary accident from the blind rage of the soldier, he seemed to be reserved for a harder fate. Dragged into the presence of his conqueror, he was loaded with irons; and the stern, unrelenting Cyrus, of whose humane temper of mind we have so beautiful, but so flattering, a picture in the philosophical romance of Xenophon, ordered him, with the melancholy train of his Lydian attendants, to be committed to the flames. An immense pile of wood and other combustibles was erected in the most spacious part of the city. The miserable victims, bound hand and foot, were placed on the top of the pyre. Cyrus, surrounded by his generals, witnessed the dreadful spectacle, either from an abominable principle of superstition if he had bound himself by a vow to sacrifice Cræsus as the first fruits of his Lydian victory, or from a motive of curiosity, equally cruel and impious, to try whether Cræsus, who had so magnificently adorned the temples and enriched the ministers of the gods, would be helped in time of need by the miraculous interposition of his much honoured protectors. Meanwhile the unfortunate Lydian, oppressed and confounded by the intolerable weight of his present calamity compared with the security and splendor of his former state, recollected his memorable conversation with the Athenian sage, and uttered with a deep groan the name of *Solon*. Cyrus asked by an interpreter, "Whose name he invoked?" "*His*," replied Cræsus, emboldened by the prospect of certain death, "whose words ought ever to speak to the heart of kings." This reply not being satisfactory, he was commanded to explain at full length the subject of his thoughts. Accordingly he related the important discourse which had passed between himself and the Athenian, of which it was the great moral, That no man could be called happy till his death.

The words of a dying man are fitted to make a strong impression on the heart. Those of Cræsus deeply affected the mind of Cyrus. The Persian considered the speech of Solon as addressed to himself. He repented of his intended cruelty towards an unfortunate prince, who had formerly enjoyed all the pomp of prosperity: and dreading the concealed vengeance that might lurk in the bosom of fate, gave orders that the pyre should be extinguished. But the workmen who had been employed to prepare it, had performed their task with so much care, that the order could not speedily be obeyed. At that moment, Cræsus calling on Apollo, whose favourite shrine of Delphi had experienced his generous munificence, and whose perfidious oracle had made him so ungrateful a return; the god, it is said, sent a plentiful shower to extinguish the pyre. This event, which saved the life, and which sufficiently attested the piety of Cræsus, strongly recommended him to the credulity of his conqueror. It seemed impossible to pay too much respect to a man who was evidently the favourite of heaven. Cyrus gave orders that

Cræsus.

Crœsus
Croisade.

that he should be seated by his side, and thenceforth treated as a king; a revolution of fortune equally sudden and unexpected. But the mind of Crœsus had undergone a still more important revolution: for, tutored in the useful school of adversity, he learned to think with patience and to act with prudence, to govern his own passions by the dictates of reason, and to repay by wholesome advice the generous behaviour of his Persian master.

The first advantage which he derived from the change in Cyrus's disposition towards him, was the permission of sending his fetters to the temple of Delphian Apollo, whose flattering oracles had encouraged him to wage war with the Persians. "Behold," were his messengers instructed to say, "the trophies of our promised success! behold the monuments of the unerring veracity of the god!" The Pythia heard their reproach with a smile of contemptuous indignation, and answered it with that solemn gravity which she was so carefully taught to assume: "The gods themselves cannot avoid their *own* destiny, much less avert, however they may retard, the determined fates of men. Crœsus has suffered, and justly suffered, for the crime of his ancestor Gyges; who, entrusted as chief of the guards, with the person of Candaules, the last king of the race of Hercules, was seduced by an impious woman to murder his master, to defile his bed, and to usurp his royal dignity. For this complicated guilt of Gyges the misfortunes of Crœsus have atoned; but know, that through the favour of Apollo, these misfortunes have happened three years later than the fates ordained." The Pythia then proceeded to explain her answers concerning the event of the war against Cyrus, and proved, to the conviction of the Lydians, that her words, if properly understood, portended the destruction, not of the Persian, but of the Lydian empire. Crœsus heard with resignation the report of his messengers, and acknowledged the justice of the Delphian oracle, which maintained and increased the lustre of its ancient fame. This fallen monarch survived Cyrus. The manner of his death is not known.

CROFT, a little close adjoining to a dwelling-house, and inclosed for pasture or arable land, or any other purpose.—In some ancient deeds, *crusta* occurs as the Latin word for a "croft;" but *cum toftis* & *croftis* is more frequent. Croft is translated in Abbo Floriacensis, by *prædium* a "farm."

CROISADE, or CRUSADE, a name given to the expeditions of the Christians against the infidels for the conquest of Palestine.

These expeditions commenced in the year 1096. The foundation of them was a superstitious veneration for those places where our Saviour performed his miracles, and accomplished the work of man's redemption. Jerusalem had been taken, and Palestine conquered, by Omar the successor of Abu Becr*, who succeeded Mahomet himself. This proved a considerable interruption to the pilgrims, who flocked from all quarters to perform their devotions at the holy sepulchre. They had, however, still been allowed this liberty, on paying a small tribute to the Saracen caliphs, who were not much inclined to molest them. But, in 1065, this city changed its masters. The Turks took it from the Saracens; and being much more fierce and barbarous than the former, the pil-

grims now found they could no longer perform their devotions with the same safety they did before. An opinion was about this time also prevalent in Europe, which made these pilgrimages much more frequent than formerly. It was somehow or other imagined, that the thousand years mentioned in the 20th chapter of the Revelations, were fulfilled; that Christ was soon to make his appearance in Palestine, to judge the world; and consequently that journeys to that country were in the highest degree meritorious, and even absolutely necessary. The multitudes of pilgrims which now flocked to Palestine meeting with a very rough reception from the Turks, filled all Europe with complaints against those infidels who profaned the holy city by their presence, and derided the sacred mysteries of Christianity even in the place where they were fulfilled. Pope Gregory VII. had formed a design of uniting all the princes of Christendom against the Mahometans; but his exorbitant encroachments upon the civil power of princes had created him so many enemies, and rendered his schemes so suspicious, that he was not able to make great progress in this undertaking. The work was reserved for a meaner instrument.

Peter, commonly called the *hermit*, a native of Amiens in Picardy, had made the pilgrimage to Jerusalem; and being deeply affected with the dangers to which that act of piety now exposed the pilgrims, as well as with the oppression under which the eastern Christians now laboured, formed the bold, and, in all appearance, impracticable design of leading into Asia, from the farthest extremities of the West, armies sufficient to subdue those potent and warlike nations that now held the Holy Land in slavery. He proposed his scheme to Martin II. who then filled the papal chair; but he, though sensible enough of the advantages which must accrue to himself from such an undertaking, resolved not to interpose his authority till he saw a greater probability of success. He summoned, at Placentia, a council consisting of 4000 ecclesiastics and 30,000 seculars. As no hall could be found large enough to contain such a multitude, the assembly was held in a plain. Here the Pope himself, as well as Peter, harangued the people, representing the dismal situation of their brethren in the East, and the indignity offered to the Christian name in allowing the holy city to remain in the hands of the infidels. These speeches were so agreeable to those who heard them, that the whole multitude suddenly and violently declared for the war, and solemnly devoted themselves to perform this service, which they believed to be so meritorious in the sight of God.

But though Italy seemed to have embraced the design with ardour, Martin yet thought it necessary, in order to insure perfect success, to engage the greater and more warlike nations in the same enterprise. Having therefore exhorted Peter to visit the chief cities and sovereigns of Christendom, he summoned another council at Clermont in Auvergne. The fame of this great and pious design being now universally diffused, procured the attendance of the greatest prelates, nobles, and princes; and when the Pope and the hermit renewed their pathetic exhortations, the whole assembly, as if impelled by an immediate inspiration, exclaimed with one voice, "It is the will of God! it is the will of

* See *Ara-*
bia, n° 76.

Croisade. of God!" These words were deemed so memorable, and so much the effect of a divine impulse, that they were employed as the signal of rendezvous and battle in all future exploits of these adventurers. Men of all ranks now flew to arms with the utmost ardour, and a cross was affixed to their right shoulder by all who enlisted in this holy enterprize.

At this time Europe was sunk in the most profound ignorance and superstition. The ecclesiastics had gained the greatest ascendant over the human mind; and the people, who committed the most horrid crimes and disorders, knew of no other expiation than the observances imposed on them by their spiritual pastors.

But amidst the abject superstition which now prevailed, the military spirit had also universally diffused itself; and, though not supported by art or discipline, was become the general passion of the nations governed by the feudal law. All the great lords possessed the right of peace and war. They were engaged in continual hostilities with one another: the open country was become a scene of outrage and disorder: the cities, still mean and poor, were neither guarded by walls nor protected by privileges. Every man was obliged to depend for safety on his own force, or his private alliances; and valour was the only excellence which was held in esteem, or gave one man the pre-eminence above another. When all the particular superstitions, therefore, were here united in one great object, the ardour for private hostilities took the same direction; "and all Europe (as the princess Anna Comnena expresses herself), torn from its foundations, seemed ready to precipitate itself in one united body upon Asia."

All orders of men, now deeming the croisades the only road to heaven, were impatient to open the way with their swords to the holy city. Nobles, artisans, peasants, even priests, inrolled their names; and to decline this service was branded with the reproach of impiety or cowardice. The nobles who enlisted themselves were moved, by the romantic spirit of the age, to hope for opulent establishments in the East, the chief seat of arts and commerce at that time. In pursuit of these chimerical projects, they sold at the lowest price their ancient castles and inheritances, which had now lost all value in their eyes. The infirm and aged contributed to the expedition by presents and money; and many of them, not satisfied with this, attended it in person, being determined, if possible, to breathe their last in sight of that city where their Saviour had died for them. Women themselves, concealing their sex under the disguise of armour, attended the camp; and commonly forgot their duty still more, by prostituting themselves to the army. The greatest criminals were forward in a service which they considered as an expiation for all crimes; and the most enormous disorders were, during the course of these expeditions, committed by men inured to wickedness, encouraged by example, and impelled by necessity. The multitude of adventurers soon became so great, that their more sagacious leaders became apprehensive lest the greatness of the armament would be the cause of its own disappointment. For this reason they permitted an undisciplined multitude, computed at 300,000 men, to go before them under the command of Peter

the hermit, and Gautier or Walter, surnamed the *moneyless*, from his being a soldier of fortune. These took the road towards Constantinople through Hungary and Bulgaria; and, trusting that heaven, by supernatural assistance, would supply all their necessities, they made no provision for subsistence in their march. They soon found themselves obliged to obtain by plunder what they vainly expected from miracles; and the enraged inhabitants of the countries through which they passed, attacked the disorderly multitude, and slaughtered them without resistance. The more disciplined armies followed after; and, passing the straits at Constantinople, they were mustered in the plains of Asia, and amounted in the whole to 700,000 men.

This rage for conquering the Holy Land did not cease with this expedition. It continued for very near two centuries, and eight different croisades were set on foot, one after another. The first was in the year 1096, as already observed. The princes engaged in it were, Hugo, count of Vermandois, brother to Philip I. king of France; Robert, duke of Normandy; Robert, earl of Flanders; Raimond, earl of Toulouse and St Giles; Godfrey of Bouillon, duke of Lorraine, with his brothers Baldwin and Eustace; Stephen, earl of Chartres and Blois; Hugo, count of St Paul; with a great number of other lords. The general rendezvous was at Constantinople. In this expedition, the famous Godfrey besieged and took the city of Nice. The city of Jerusalem was taken by the confederated army, and Godfrey chosen king. The Christians gained the famous battle of Ascalon against the sultan of Egypt; which put an end to the first croisade.

The second croisade, in the year 1144, was headed by the emperor Conrad III. and Louis VII. king of France. The emperor's army was either destroyed by the enemy, or perished through the treachery of Manuel the Greek emperor; and the second army, through the unfaithfulness of the Christians of Syria, was forced to break up the siege of Damascus.

The third croisade, in the year 1188, immediately followed the taking of Jerusalem by Saladin the sultan of Egypt. The princes engaged in this expedition were, the emperor Frederic Barbarossa; Frederic duke of Suabia, his second son; Leopold duke of Austria; Berthold duke of Moravia; Herman marquis of Baden; the counts of Nassau, Thuringia, Miffen, and Holland; and above 60 other princes of the empire; with the bishops of Befançon, Cambray, Munster, Osnaburg, Miffen, Passau, Vifburg, and several others. In this expedition, the emperor Frederic defeated the sultan of Iconium: his son Frederic, joined by Guy Lusignen king of Jerusalem, in vain endeavoured to take Acre or Ptolemais. During which transactions, Philip Augustus king of France, and Richard I. king of England, joined the croisade; by which means the Christian army consisted of 300,000 fighting men: but great disputes happening between the kings of France and England, the former quitted the Holy Land, and Richard concluded a peace with Saladin.

The fourth croisade was undertaken, in the year 1195, by the emperor Henry VI. after Saladin's death. In this expedition the Christians gained several battles against

croisades.

against the infidels, took a great many towns, and were in the way of success, when the death of the emperor obliged them to quit the Holy Land, and return into Germany.

The fifth croisade was published, by order of pope Innocent III. in 1198. Those engaged in it made fruitless efforts for the recovery of the Holy Land; for, though John de Neule, who commanded the fleet equipped in Flanders, arrived at Ptolemais a little after Simon of Montfort, Renard of Dampierre, and others; yet the plague destroying many of them, and the rest either returning or engaging in the petty quarrels of the Christian princes, there was nothing done; so that the foldan of Aleppo easily defeated their troops in 1204.

The sixth croisade began in 1228; in which the Christians took the town of Damietta, but were forced to surrender it again. The next year the emperor Frederic made peace with the foldan for 10 years. About 1240, Richard earl of Cornwall, and brother to Henry III. king of England, arrived in Palestine at the head of the English croisade; but finding it most advantageous to conclude a peace, he embarked, and steered towards Italy. In 1244, the Karasimians being driven out of Persia by the Tartars, broke into Palestine, and gave the Christians a general defeat near Gaza.

The seventh croisade was headed by St Lewis, in the year 1249, who took the town of Damietta: but a sickness happening in the Christian army, the king endeavoured a retreat; in which being pursued by the infidels, most of his army were miserably butchered, and himself and the nobility taken prisoners. Then a truce was agreed upon for 10 years, and the king and lords set at liberty.

The eight croisade, in 1270, was headed by the same prince, who made himself master of the port and castle of Carthage in Africa; but dying in a short time, he left his army in a very ill condition. Soon after, the king of Sicily coming up with a good fleet, and joining Philip the Bold, son and successor of Lewis the king of Tunis, after several engagements with the Christians, in which he was always worsted, desired peace, which was granted upon conditions advantageous to the Christians: after which both princes embarked for their own kingdoms. Prince Edward of England, who arrived at Tunis at the time of this treaty, sailed towards Ptolemais, where he landed with a small body of 300 English and French, and hindered Bendocdar from laying siege to Ptolemais: but being obliged to quit the Holy Land to take possession of the crown of England, this croisade ended without contributing any thing to the recovery of the Holy Land. In 1291, the town of Acre, or Ptolemais, was taken and plundered by the foldan of Egypt, and the Christians quite driven out of Syria. There has been no croisade since that time, though several popes have attempted to stir up the Christians to such an undertaking; particularly Nicholas IV. in 1292, and Clement V. in 1311.

Though these croisades were effects of the most absurd superstition, they tended greatly to promote the good of Europe. Multitudes indeed were destroyed. M. Voltaire computes the people who perished in the different expeditions at upwards of two millions. Many there were, however, who returned; and these ha-

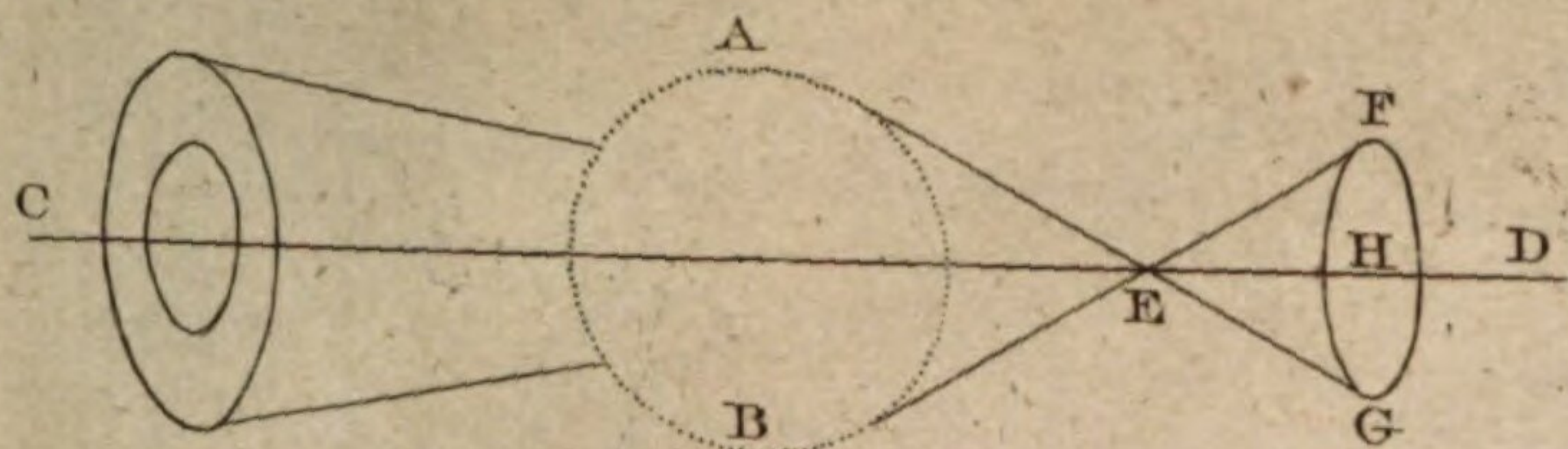
Nº 94.

ving conversed so long with people who lived in a much more magnificent way than themselves, began to entertain some taste for a refined and polished way of life. Thus the barbarism in which Europe had been so long immersed, began to wear off soon after this time. The princes also who remained at home, found means to avail themselves of the frenzy of the people. By the absence of such numbers of restless and martial adventurers peace was established in their dominions. They also took the opportunity of annexing to their crown many considerable fiefs, either by purchase, or by the extinction of the heirs; and thus the mischiefs which must always attend feudal governments were considerably lessened.

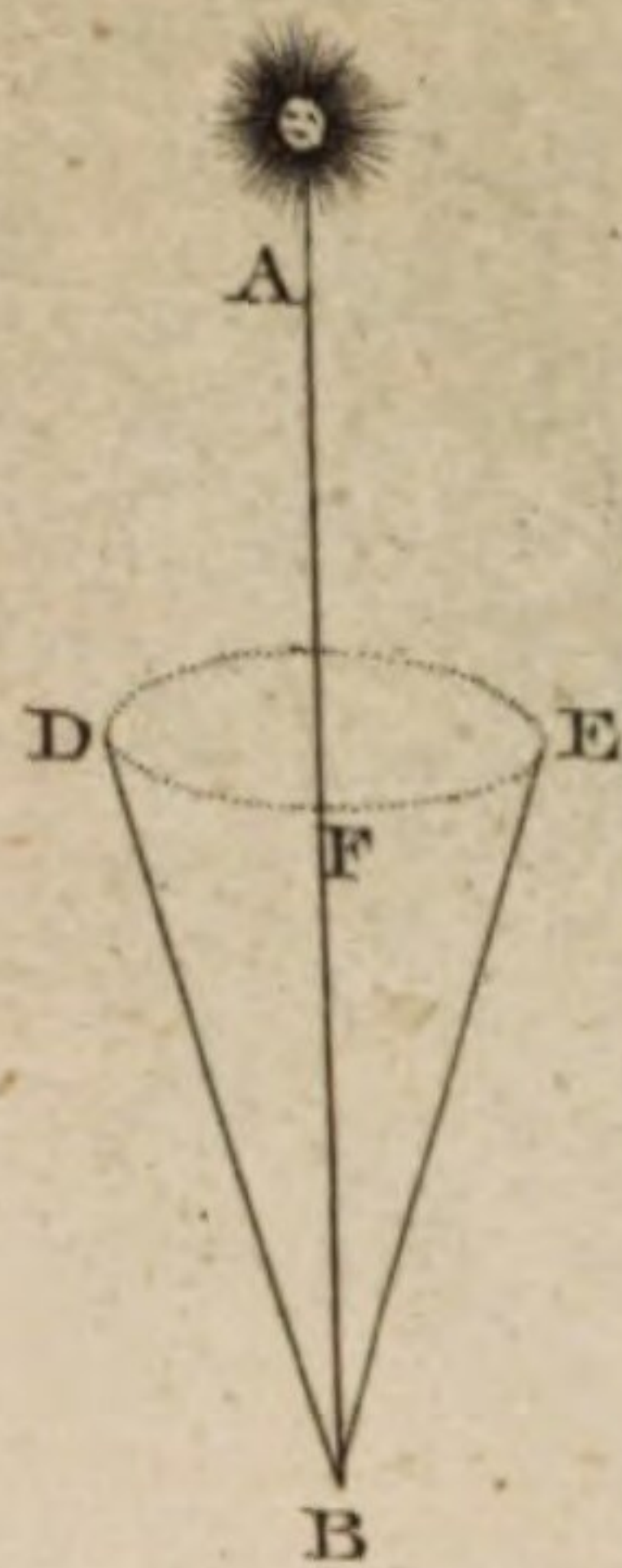
With regard to the bad success of the croisaders, it was scarce possible that any other thing could happen them. The emperors of Constantinople, instead of assisting, did all in their power to disconcert their schemes. They were jealous, and not without reason, of such an inundation of barbarians. Yet, had they considered their true interest, they would rather have assisted them, or at least stood neuter, than entered into alliances with the Turks. They followed the latter method, however, and were often of very great disservice to the western adventurers, which at last occasioned the loss of their city*. But the worst enemies the croisaders had, were their own internal feuds and dissensions. They neither could agree while marching together in armies with a view to conquest, nor could they unite their conquests under one government after they had made them. They set up three small states, one at Jerusalem, another at Antioch, and another at Edessa. These states, instead of assisting, made war upon each other, and on the Greek emperors; and thus became an easy prey to the common enemy. The horrid cruelties they committed also were such as must have inspired the Turks with the most invincible hatred against them, and made them resist with the greatest obstinacy. They were such as could have been committed only by barbarians inflamed with religious enthusiasm. When Jerusalem was taken, not only the numerous garrison were put to the sword, but the inhabitants were massacred without mercy and without distinction. No age nor sex was spared, not even sucking children. According to Voltaire, some Christians, who had been suffered by the Turks to live in that city, led the conquerors into the most private caves where women had concealed themselves with their children, and not one of them was suffered to escape. What eminently shows the enthusiasm by which these conquerors were animated, is their behaviour after this terrible slaughter. They marched over heaps of dead bodies towards the holy sepulchre; and while their hands were yet polluted with the blood of so many innocent persons, sung anthems to the common Saviour of mankind. Nay, so far did their religious enthusiasm overcome their fury, that these ferocious conquerors now burst into tears. If the absurdity and wickedness of this conduct can be exceeded by any thing, it must be by what follows. In the year 1204, the frenzy of croisading seized the children, who are ever ready to imitate what they see their parents engage themselves in. Their childish folly was encouraged by the monks and schoolmasters, and thousands of those innocents were conducted from

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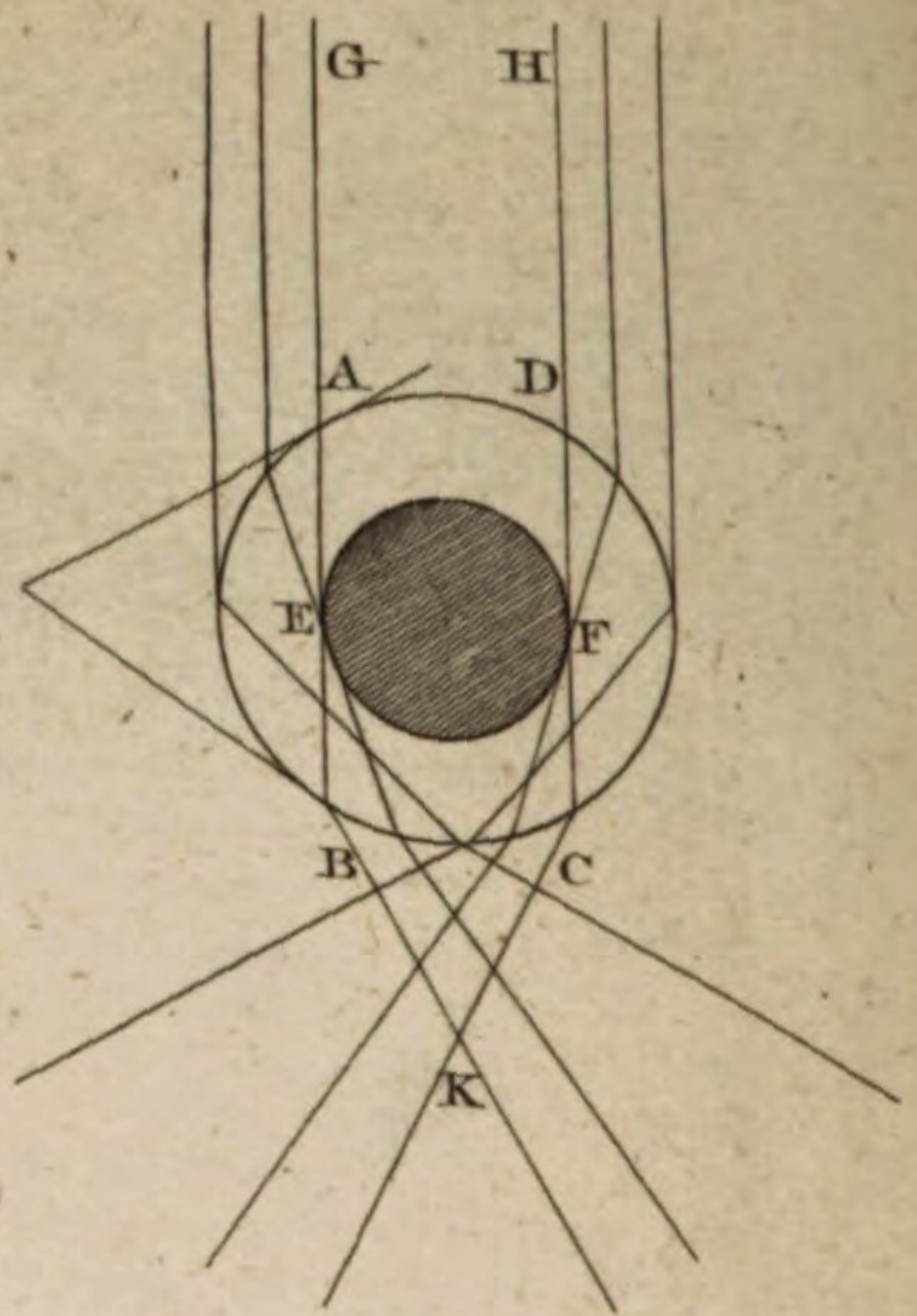


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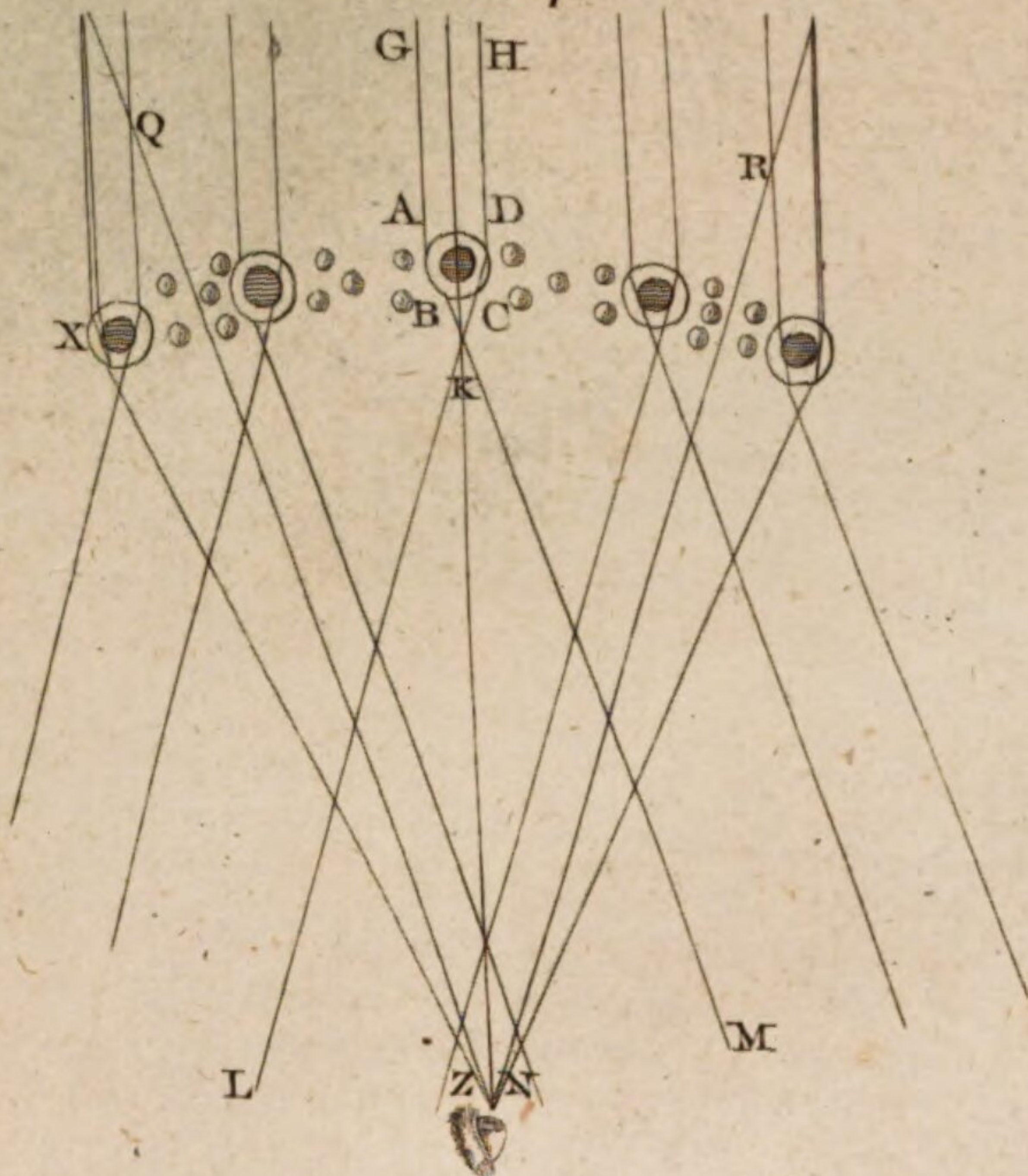


Cradle.

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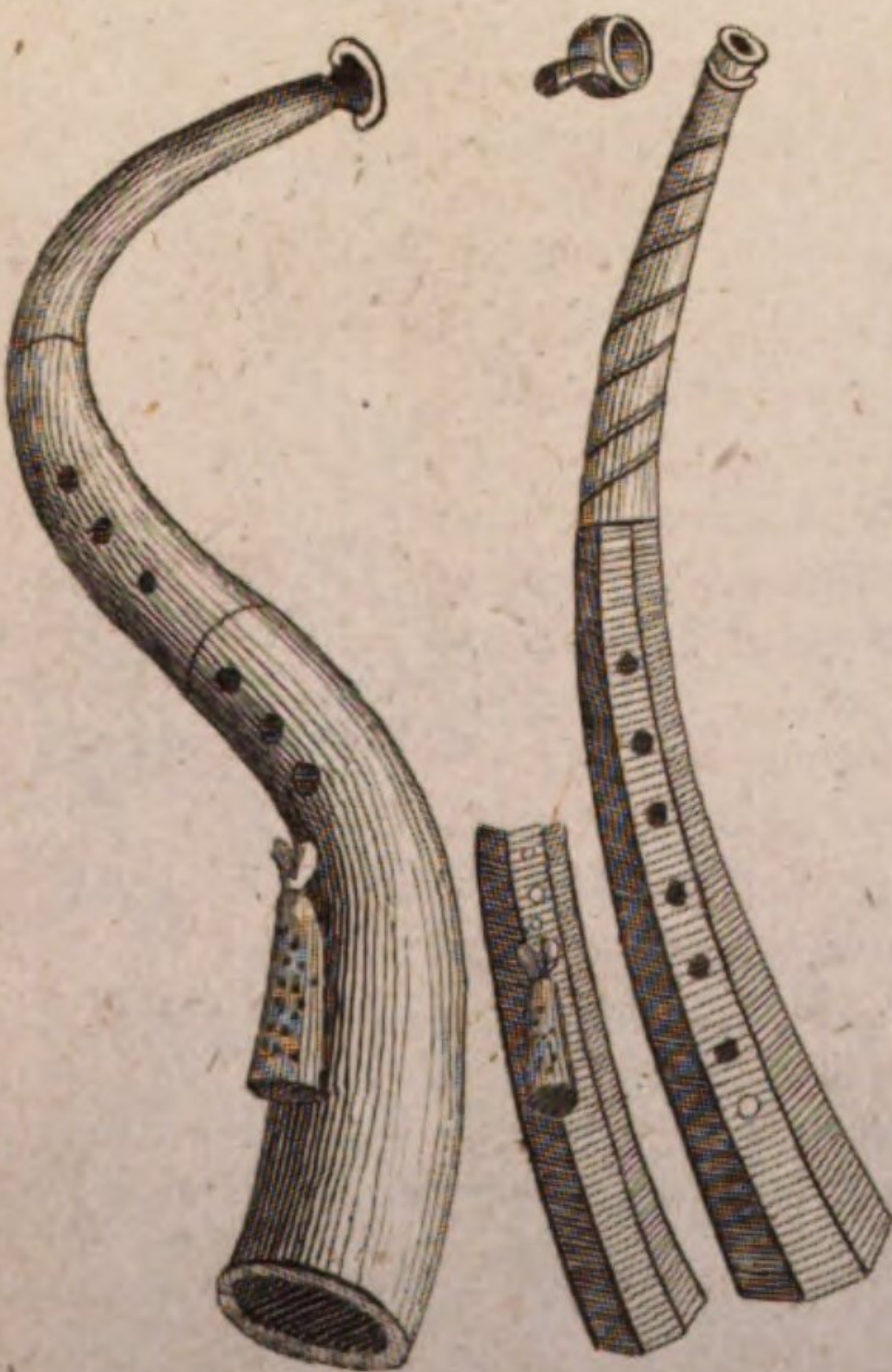
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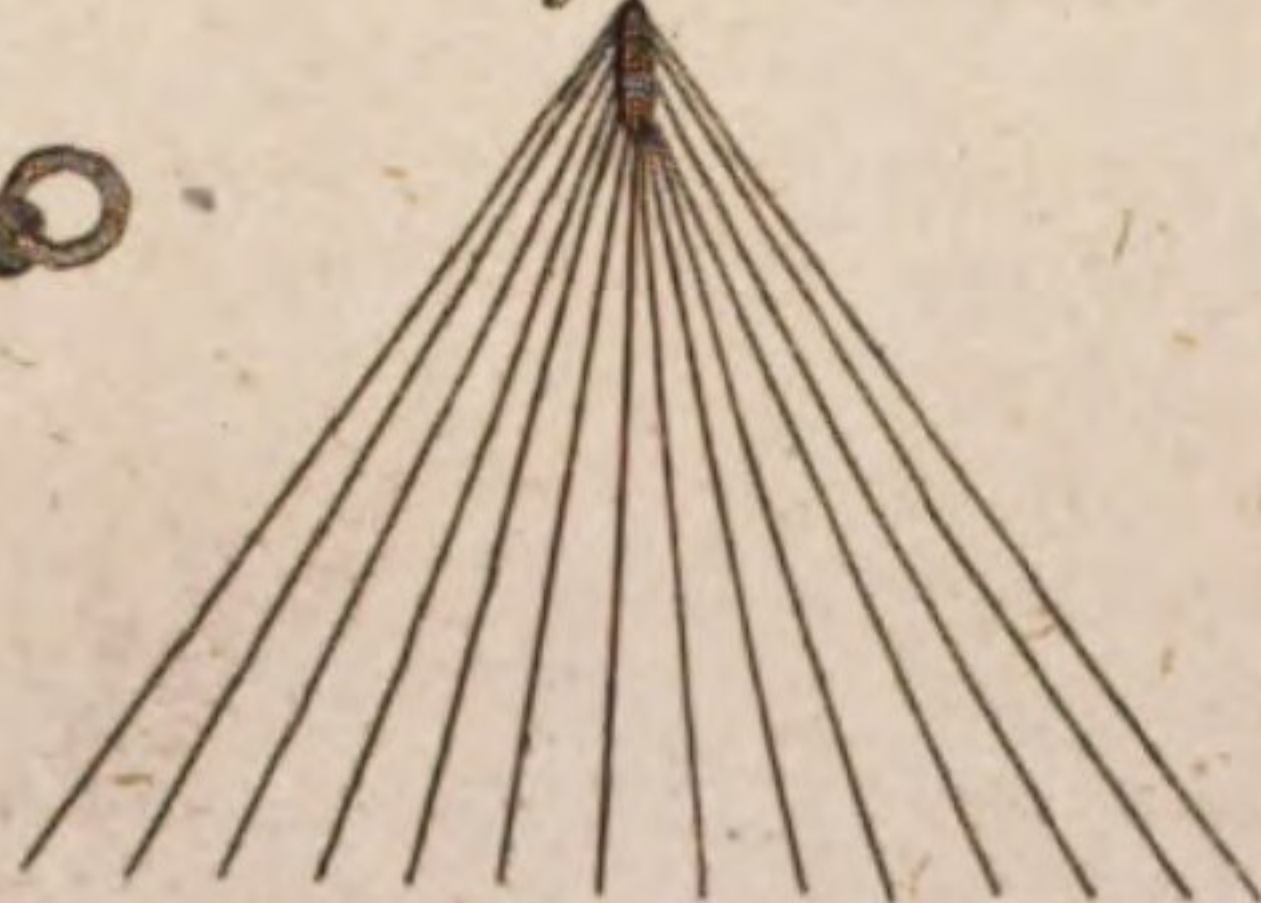
Cornet.



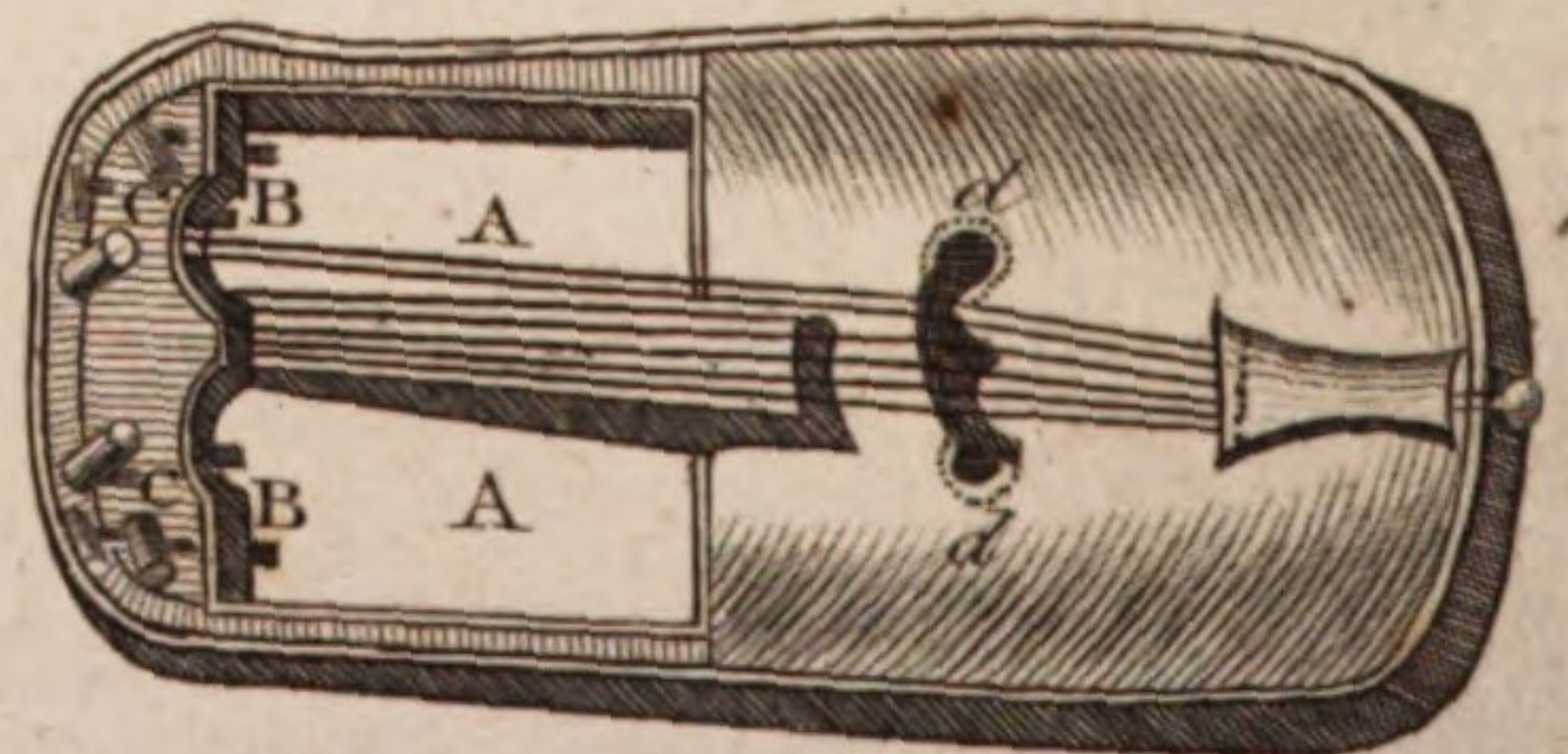
Creper.



Crownfoot.



Crowth.



Crown.



Croises

||
Croix.

the houses of their parents on the faith of these words, "Out of the mouth of babes and sucklings hast thou perfected praise." Their base conductors sold a part of them to the Turks, and the rest perished miserably.

CROISES, or CROIZES, in English antiquity, pilgrims bound for the Holy Land, or such as had been there; so called from a badge they wore in imitation of a cross. The knights of St John of Jerusalem, created for the defence and protection of pilgrims, were particularly called *croises*.

CROISIERS, a religious order founded in honour of the invention or discovery of the cross by the empress Helena. They are dispersed in several parts of Europe particularly in the Low Countries, France, and Bohemia, those in Italy being at present suppressed. These religious follow the rule of St Augustine. They had in England the name of *crouched friars*.

CROIX (FRANCIS PETIS DE LA), secretary and interpreter to the king of France in the Turkish and Arabic languages, died November 4th 1695, in his 73d year; after having executed this employment for the space of 44 years. And it appears, that he executed it with as much integrity as abilities; for, when the Algerines sought for peace of Louis XIV. conditions were offered, by which they were required to reimburse to this monarch 600,000 francs. The terms being thought exorbitant, they had recourse to stratagem: and they offered a large sum to La Croix, who was the interpreter of all that passed, if he would put into the treaty "crowns of Tripoli," instead of "French crowns;" which would have made to the Algerines a difference of more than 100,000 livres. But the integrity of the interpreter triumphed over the temptation; which however was the greater, as it was next to impossible he should be discovered. Besides the Turkish and the Arabic, the Persian and the Tartarian, he also understood the Ethiopian and Armenian languages. He is well known to the learned world by many works. He translated the "History of France" into the Turkish language. He digested the three volumes of "Voyages into the East Indies" of M. Thevenot. He made an accurate catalogue of all the Turkish and Persian books which are in the king's library. He composed two complete Dictionaries for the French and Turkish languages: and, when he was dying, he was about to present the world with the history of Genghiscan. He undertook this history by the order of M. Colbert: for this minister, altogether intent upon aggrandizing his master, was accustomed every week to call together, either in the king's library or his own, certain of the learned, whom, according as they excelled in their several departments in literature, he constantly set to work. This history, which, cost La Croix more than ten years labour, is useful, not only to the learned who are curious to know past events, or to geographers who had hitherto been greatly ignorant of Grand Tartary, but likewise to all who trade to China, Persia, or other eastern parts of the world. There is a good map of northern Asia drawn by M. de l'Isle, accompanying the work; which M. Petis de la Croix, the author's son, not only revised, but, to render it more curious, added to it an abridgement of the lives of all those authors from whom it was extracted. It was translated into English, and published at London, 1722. 8vo.

VOL. V. PART. II.

CROMARTY, the capital of the shire of Cromarty, Cromarty in Scotland, with an excellent and safe harbour capable of containing the greatest fleets. W. Long. Cromwell. 3. 40. N. Lat. 57. 54.

CROMLECH, in British antiquities, are huge, broad, flat stones, raised upon other stones set up on end for that purpose. They are common in ANGLESEY; under which article a very large one is described. See Plate CL.

These monuments are spoken of largely by Mr Rowland, by Dr Borlase, and by Wormius, under the name or *Ara* or altar. Mr Rowland, however, is divided in his opinion; for he partly inclines to the notion of their having been altars, partly to their having been sepulchres: he supposes them to have been originally tombs, but that in after times sacrifices were performed upon them to the heroes deposited within. Mr Keiller preserves an account of King Harold having been interred beneath a tomb of this kind in Denmark, and Mr Wright discovered in Ireland a skeleton deposited under one of them. The great similarity of the monuments throughout the north, Mr Pennant observes, evinces the same religion to have been spread in every part, perhaps with some slight deviations. Many of these monuments are both British and Danish; for we find them where the Danes never penetrated.

The cromlech, or cromleh, chiefly differs from the *Kist-vaen*, in not being closed up at the end and sides, that is, in not so much partaking of the chest like figure; it is also generally of larger dimensions, and sometimes consists of a greater number of stones: the terms *cromleh* and *kist vaen* are however indiscriminately used for the same monument. The term *cromlech* is by some derived from the Armorican word *crum*, "crooked or bowing," and *leb* "stone," alluding to the reverence which persons paid to them by bowing. Rowland derives it from the Hebrew words *carem-luach*, signifying a "devoted or consecrated stone." They are called by the vulgar *coetne Arthor*, or *Arthur's quoits*, it being a custom in Wales as well as Cornwall to ascribe all great or wonderful objects to Prince Arthur, the hero of those countries.

CROMWELL (Thomas), earl of Essex, was the son of a blacksmith at Putney, and born in 1498. Without a liberal education, but endowed with a strong natural genius, he considered travelling as the proper means of improving his understanding; and to this early token of his sound judgment he stood indebted for the high rank and distinguished honours he afterwards enjoyed. He became by degrees the confidential favourite and prime minister of Henry VIII.; and from the moment he acquired any authority in the cabinet, he employed it in promoting the reformation, to his zeal for which he became a victim; for, the more firmly to secure the Protestant cause, he contrived to marry the king to Ann of Cleves, whose friends were all Lutherans. Unfortunately Henry took a disgust to this lady, which brought on Cromwell's ruin; the king, with his usual cruelty and caprice, taking this opportunity to sacrifice this minister to the Roman Catholic party, to whom he seemed desirous of reconciling himself as soon as he had Catherine Howard in view. Cromwell was a great politician, and a good man; but, like most statesmen, was guilty of great errors. In his zeal for the new reli-

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gion,

Cromwell. gion, he had introduced the unjustifiable mode of attainder in cases of treason and heresy; and his enemies, who were numerous (consisting of two classes, the ancient nobility and gentry, who were enraged to see the highest honours bestowed on a man of his mean extraction, and the Roman Catholics, who detested him), having preferred many complaints against him, availed themselves of his own law. He was attainted of treason and heresy, convicted unheard, and beheaded in 1540. He was the chief instrument of the suppression of the abbeys and monasteries, and of the destruction of images and relics; to him also we are indebted for the institution of parish-registers of births, marriages, and burials.

CROMWELL (Oliver), styled *Lord Protector* of the commonwealth of England, one of the most extraordinary personages mentioned in history, was the son of Mr Robert Cromwell of Hinchinbrooke in the county of Huntingdon. His ancestors were of very honourable extraction: but no ways related to Thomas Cromwell earl of Essex, the prime minister and favourite of Henry VIII. He was born in the parish of St John, Huntingdon, where his father mostly lived, on the 24th or 25th of April 1599, and educated at the free school of that town. Little is known concerning him in his younger years, or indeed concerning his behaviour in private life. It is, however, related by authors of unsuspected veracity, that when at school he gave many signs of a very turbulent and restless disposition. He is also said from his early years to have been subject to the hypochondriac disorder, and to many deceptions of the imagination. He had a very remarkable one while at school. It happened in the day-time, when he was lying melancholy upon his back in bed. A spectre, as he thought, approached him, and told him that he should be the greatest man in the kingdom. His father, being informed of this, was very angry, and desired his master to correct him severely. This, however, produced no effect. Oliver persisted in the truth of his story, and would sometimes mention it though his uncle told him "it was too traitorous to be repeated."—From this school Oliver was removed to Sidney college in Cambridge, where he was admitted in 1616. His progress in his studies is uncertain; but he spent much time in playing at foot-ball, cricket, and other robust exercises, at which he was very expert. His father dying after he had been about two years at college, Cromwell returned home; but the irregularity of his life gave such offence to his mother, that, by the advice of some friends, she sent him to London, and placed him in Lincoln's inn. This expedient by no means answered the purpose; her son gave himself up to gaming, wine, and women, so that he quickly dissipated all that was left him by his father. This dissipation, however, could be but of very short continuance; for he was married, before he was 21 years of age, to Elizabeth daughter of Sir James Bouchier of Essex. Soon after his marriage he returned to the country, where he led a very grave and sober life. This sudden reformation has been ascribed to his falling in with the Puritans; but it is certain, that Mr Cromwell continued then, and for some time after, a zealous member of the church of England, and formed a close friendship with several eminent divines.

He continued at Huntingdon where he settled after his marriage, till an estate of between L. 400 and L. 500 *per annum* devolved to him by the death of his uncle Sir Thomas Stuart. This induced him to remove to the isle of Ely where the estate lay, and here he embraced the puritanical doctrines. He was elected a member of the third parliament of Charles I. which met on the 20th of January 1628; and was a member of the committee for religion, where he distinguished himself by his zeal against popery. After the dissolution of that parliament, he returned again into the country, where he continued to express much concern for religion, to keep company with silenced ministers, and to invite them often to lectures and sermons at his house. Thus he brought his affairs again into a very indifferent situation; so that, by way of repairing the breaches he made in his fortune, he took a farm at St Ives, which he kept five years. But this scheme succeeded so ill, that he was obliged to give it up; and at last, chagrined with his disappointments, and made uneasy by the treatment his party at that time received, he formed a design of going over to New-England. In this, however, he was disappointed; the king issued out a proclamation against all such emigrations, and Cromwell was obliged to remain in England against his will.

In 1638, Cromwell had first an opportunity of getting himself publicly taken notice of. The earl of Bedford, and some other persons of high rank, who had estates in the fen country, were very desirous of having it better drained; and though one project of this sort had failed, they set on foot another, got it countenanced by royal authority, and settled a part of the profits upon the crown. This, though really intended for a public benefit, was opposed as injurious to private property: and at the head of the opposers was Mr Oliver Cromwell, who had considerable influence in these parts. The vigour he showed on this occasion recommended him to his friend and relation Mr Hampden; who afterwards characterized him in parliament, as a person capable of contriving and conducting great designs. But for all this he was not very successful in his opposition; and as his private affairs were still declining, he was in very necessitous circumstances at the approach of the long parliament. In this critical situation he got himself elected member of parliament in the following manner. In the puritanical meetings which he constantly frequented, Oliver had most eminently distinguished himself by his gifts of praying, preaching and expounding. At one of these meetings, he met with one Richard Tims, a tradesman of Cambridge. This man was so much taken with Oliver, that he took it into his head to attempt getting him chosen burgess for the approaching parliament. Being himself one of the common council, Tims imagined this design might be brought about; and with this view went to Mr Wildbore a relation of Cromwell's, to whom he communicated his intention. Wildbore agreed as to the fitness of the person; but told him the design was impracticable, because Oliver was not a freeman. Tims next addressed one Evett on the same subject, who also made the same objection. He recollected, however, that the mayor had a freedom to bestow, and a scheme was immediately laid for securing this freedom to Cromwell. On application

Cromwell. plication to the mayor, however, he told them that the freedom was already disposed of to another; but this objection being obviated by promising that person a freedom from the town, the mayor being informed that Cromwell was a man of great fortune, signified his intention of bestowing the freedom upon him. Our hero, being informed of the good offices of his friends, made his appearance in the court dressed in scarlet richly laced with gold, and having provided plenty of claret and sweetmeats, they were so freely circulated among the corporation, that Mr Mayor's freeman was unanimously declared to be a very civil worthy gentleman. When the election came on, the mayor discovered his mistake, but it was now too late; the party among the burgeses was strong enough to choose him, and accordingly did so at the election next year.

When Cromwell first came into parliament, he affected great plainness, and even carelessness, in his dress. His attention to farming had entirely rusticated him, so that he made a very uncouth appearance. "Who (says Dr South) that had beheld such a bankrupt, beggarly fellow, as Cromwell, first entering the parliament house, with a thread-bare torn coat and greasy hat, and perhaps neither of them paid for, could have suspected, that, in the space of so few years, he should, by the murder of one king, and the banishment of another, ascend the throne, be invested with the royal robes, and want nothing of the state of a king but the changing his hat into a crown?" Cromwell was very active in promoting the famous *Remon-*

* See *Bri-france* *; which in reality laid the foundation of the civil war. He declared afterwards to Lord Falkland, that if the remonstrance had not been carried, he designed to have converted the small remains of his estate into ready money the next day, and to have left the kingdom by the first opportunity. His firmness on this occasion so effectually recommended him to Hampden, Pym, and the other leaders of the popular party, that they took him into all their councils; and here he acquired that clear insight into things, and that knowledge of men, of which he afterwards made such prodigious use. His exploits during the civil war, his murder of the king, and usurpation of the kingdom, are related under the article *BRITAIN*, n^o 139.—188.

With regard to the character of Cromwell, Mr Hume expresses himself as follows: "The writers attached to this wonderful person make his character, with regard to abilities, bear the air of the most extravagant panegyric: his enemies form such a representation of his moral qualities as resembles the most virulent invective. Both of them, it must be confessed, are supported by such striking circumstances in his fortune and conduct, as bestow on their representation a great air of probability. 'What can be more extraordinary (it is said), than that a person of private birth and education, no fortune, no eminent qualities of body, which have sometimes, nor shining qualities of mind, which have often, raised men to the highest dignities, should have the courage to attempt, and the abilities to execute, so great a design as the subverting one of the most ancient as well as best established monarchies in the world? That he should have the power and boldness to put his prince and

master to an open and infamous death? Should banish Cromwell. that numerous and strongly allied family? Cover all these tamerities under a seeming obedience to a parliament, in whose service he pretended to be retained? Trample too upon that parliament in their turn, and scornfully expel them as soon as they gave him ground of dissatisfaction? Erect in their place the dominion of the saints, and give reality to the most visionary idea which the heated imagination of any fanatic was ever able to entertain? Suppress again that monster in its infancy, and openly set himself up above all things that ever were called *sovereign* in England? Overcome first all his enemies by arms, and all his friends afterwards by artifice? Serve all parties patiently for a while, and afterwards command them victoriously at last? Over-run each corner of the three nations, and subdue with equal facility both the riches of the south, and the poverty of the north? Be feared and courted by all princes, and adopted a brother to the gods of the earth? Call together parliaments with a word of his pen, and scatter them again by the breath of his mouth? Reduce to subjection a warlike and discontented nation by means of a mutinous army? Command a mutinous army by means of seditious and factious officers? Be humbly and daily petitioned, that he would be pleased, at the rate of millions a-year, to be hired as master of those who had formerly hired him for their servant? Have the estates and lives of three nations as much at his disposal as was once the little inheritance of his father, and be as noble and liberal in the spending of them? And, lastly, (for there is no end of enumerating every particular of his glory), with one word bequeath all this power and splendor to his posterity? Die possessed of peace at home, and triumph abroad? Be buried among kings, and with more than regal solemnity? And leave a name behind him not to be extinguished but with the whole world; which, as it was too little for his praise, so it might have been for his conquests, if the short line of his mortal life could have stretched out to the extent of his immortal designs?"

"My intention is not to disfigure this picture drawn by so masterly a hand: I shall only endeavour to remove from it somewhat of the marvellous; a circumstance which, on all occasions, gives much ground for doubt and suspicion. It seems to me that the circumstance of Cromwell's life in which his abilities are principally discovered, is his rising, from a private station, in opposition to so many rivals, so much advanced before him, to a high command and authority in the army. His great courage, his signal military talents, his eminent dexterity and address, were all requisite for this important acquisition. Yet will not this promotion appear the effect of supernatural abilities, when we consider that Fairfax himself, a private gentleman, who had not the advantage of a seat in parliament, had, through the same steps, attained even to a superior rank; and, if endued with common capacity and penetration, had been able to retain it. To incite such an army to rebellion against the parliament, required no uncommon art or industry: to have kept them in obedience had been the more difficult enterprize. When the breach was once formed between the military and civil powers, a supreme and absolute authority, from that moment, is devolved on

Cromwell. the general; and if he is afterwards pleased to employ artifice or policy, it may be regarded on most occasions as great condescension, if not as superfluous caution. That Cromwell was ever able really to blind or over reach either the king or the republicans, does not appear: as they possessed no means of resisting the force under his command, they were glad to temporize with him; and, by seeming to be deceived, to wait for an opportunity of freeing themselves from his dominion. If he seduced the military fanatics, it is to be considered, that their interest and his evidently concurred; that their ignorance and low education exposed them to the grossest imposition; and that he himself was at bottom as frantic an enthusiast as the worst of them; and, in order to obtain their confidence, needed but to display those vulgar and ridiculous habits which he had early acquired, and on which he set so high a value. An army is so forcible, and at the same time so coarse a weapon, that any hand which wields it, may, without much dexterity, perform any operation, and attain any ascendant in human society.

"The domestic administration of Cromwell, though it discovers great ability, was conducted without any plan either of liberty or arbitrary power: perhaps his difficult situation admitted of neither. His foreign enterprises, though full of intrepidity, were pernicious to national interest; and seem more the result of impetuous fury or narrow prejudices, than of cool foresight and deliberation. An eminent personage, however, he was in many respects, and even a superior genius; but unequal and irregular in his operations: and, though not defective in any talent except that of elocution, the abilities which in him were most admirable, and which contributed most to his marvellous success, were the magnanimous resolution of his enterprises, and his peculiar dexterity in discovering the characters and practising on the weaknesses of mankind.

"If we survey the moral character of Cromwell, with that indulgence which is due to the blindness and infirmities of the human species, we shall not be inclined to load his memory with such violent reproaches as those which his enemies usually throw upon it. Amidst the passions and prejudices of that time, that he should prefer the parliamentary to the royal cause, will not appear extraordinary; since even at present many men of sense and knowledge are disposed to think, that the question, with regard to the justice of the quarrel, may be regarded as doubtful and ambiguous. The murder of the king, the most atrocious of all his actions, was to him covered under a mighty cloud of republican and fanatical illusions; and it is not impossible but he might believe it, as many others did, the most meritorious action which he could perform. His subsequent usurpation was the effect of necessity, as well as of ambition; nor is it easy to see how the various factions could at that time have been restrained without a mixture of military and arbitrary authority. The private deportment of Cromwell as a son, a husband, a father, a friend, is exposed to no considerable censure, if it does not rather merit praise. And, upon the whole, his character does not appear more extraordinary and unusual by the mixture of so much absurdity with so much penetration, than by his temper-

ing such violent ambition and such enraged fanaticism Cromwell with so much regard to justice and humanity."

That Cromwell continued a most complete and bigotted enthusiast to the very last, appears from his behaviour in his last sickness. His disease, which at first was a kind of slow fever, brought on by the cares and anxiety of his mind, soon degenerated into a tertian ague. For about a week the disorder continued without any dangerous symptoms, inasmuch that every other day he walked abroad; but one day after dinner his five physicians coming to wait upon him, one of them having felt his pulse, said that it intermitted. At this Cromwell was surprised, turned pale, fell into a cold sweat, and, when he was almost fainting, ordered himself to be carried to bed; where, by the assistance of cordials, being brought a little to himself, he made his will with respect to his private affairs. The next morning when one of his physicians came to visit him, Cromwell asked him, why he looked so sad? and when answer was made that so it became every one who had the weighty charge of his life and health upon him, "Ye physicians (says Cromwell), think I shall die: I tell you I shall not die this bout, I am sure of it. Do not you think (said he to the physician, looking more attentively at him), do not think that I am mad: I speak the words of truth upon surer grounds than your Hippocrates or Galen can furnish you with. God Almighty himself hath given that answer, not to my prayers alone, but also to the prayers of those who entertain a stricter commerce, and greater interest with him. Go on cheerfully, banishing all sadness from your looks; and deal with me as you would do with a serving man. Ye may have a skill in the nature of things; yet nature can do more than all physicians put together, and God is far more above nature." As this physician was coming out of the chamber, he accidentally met with another, to whom he expressed his fear that the protector was turning light-headed. But the other informed him that the chaplains, being dispersed the preceding night into different parts of the house, had prayed for the protector's recovery, and unanimously received for answer that he should recover. Nay, to such a degree of madness did they at last arrive, that, a public fast being kept at Hampton court, they did not so much pray to God for the protector's health, as return thanks for the undoubted pledges they had of his recovery. On this account, though the physicians perceived his distemper increasing every hour, they took no notice of his danger, till it became necessary for him to appoint a successor while he had any breath remaining. But being then in a lethargic fit, he answered from the purpose; upon which he was again asked whether he did not name his eldest son Richard? and to this question he answered, Yes. Being then asked where his will was which he had formerly made concerning the heirs of the kingdom; he sent to look for it in his closet and other places, but in vain; for somebody had either stole it, or he himself had burnt it. Soon after, he expired, on the 3d of September 1658, aged somewhat more than 59 years and four months. This day of September he had always reckoned to be the most fortunate for him in the whole year. A violent tempest, which immediately succeeded his death, served as a subject of discourse to the vulgar. His partizans, as well as his opponents, were

Cromwell, were fond of remarking this event: and each of them endeavoured, by forced inferences, to interpret it as best suited their particular prejudices.

It has been imagined by some, that Oliver Cromwell was poisoned: but for this there seems to be no reasonable foundation. His body was opened by Dr Bates. He found the brain somewhat overcharged with blood, and the lungs a little inflamed; but what he reckoned to have been the principal cause of his disorder, was a total degeneracy of the substance of the spleen into a matter resembling the lees of oil. This, he thought, also accounted for the hypochondriac dispositions to which Cromwell had from his infancy been subject. Though the bowels were taken out, and the body filled with spices wrapped in a fourfold cere cloth, put first into a coffin of lead, and then into one of wood, yet the corruption was so great that the humour wrought itself through the whole, and there was a necessity of interring the body before the solemnity of the funeral. A very pompous funeral was ordered at the public expence, and performed from Somerset-house, with a splendor not only equal but superior to that bestowed upon crowned heads. Some have related that his body was deposited in Naseby-field: others, that it was wrapped in lead, and sunk in the deepest part of the Thames, to prevent any insult that might afterwards be offered to it. But it seems beyond doubt that his body was interred at Westminster; as we are informed, that on the order to disinter him after the restoration, his corpse was found in a vault in the middle aisle of Henry VII.'s chapel. In the inside of the coffin, and on the breast of the corpse, was laid a copper plate finely gilt, inclosed in a thin case of lead. On one side of this plate were engraven the arms of England impaled with those of Oliver, and on the reverse the following legend: *Oliverius Protector Reipublicæ Angliæ, Scotiæ, et Hiberniæ, natus 25 Aprilis 1599, inauguratus 16 Decembris 1653, mortuus 3 Septembris ann. 1658, hic situs est.*

Cromwell was of a robust frame of body, and of a manly, though not agreeable aspect. His nose being remarkably red and shining, was often made the subject of ridicule. He left only two sons, Richard and Henry: and three daughters; one married to General Fleetwood, another to Lord Fauconberg, and a third to Lord Rich. His mother lived till after he was protector; and contrary to her orders he buried her with great pomp in Westminster Abbey. She could not be persuaded that ever his power or his person was in safety. At every noise she heard she would exclaim that her son was murdered; and was never satisfied that he was alive if she did not receive frequent visits from him. She was a decent woman; and by her frugality and industry had raised and educated a numerous family upon a small fortune. She had even been obliged to set up a brewery at Huntingdon, which she managed to good advantage. Hence Cromwell, in the invectives of that age, is often stigmatized with the name of brewer. Ludlow, by way of insult, mentions the great accession which he would receive to his royal revenues upon his mother's death, who possessed a jointure of 60 pounds a-year upon his estate. She was of a good family, of the name of Stuart; and is by some supposed to have been remotely allied to the royal family.

Cromwell (Richard), eldest son of Oliver Cromwell, was by his father appointed successor to the protectorship, but very soon deposed by the army. They discharged his debts, took all the household stuff, plate, &c. gave him a protection for six months, and so he retired. He was by no means qualified to support the station gained by the aspiring talents of his father. He was of a moderate temper, and untainted with that fanatical spirit which his father had so successfully cultivated. On the restoration he went abroad; but returned in 1680 under the assumed name of Clark, and settled at Cheshunt in Hertfordshire, where he lived privately, and died in 1712, aged 86.

CRONENBURG, a town of Germany, in the circle of the upper Rhine, and in the landgravate of Hesse Cassel, with a strong castle. It is seated at the foot of a high mountain, on a fertile soil, and is surrounded with a double wall. E. Long. 8. 15. N. Lat. 50. 15.

CRONENBURG, a strong fortress of Denmark, in the isle of Zealand, at the entrance of the Sound, where the Danes take toll of such ships as are bound for the Baltic. It was very richly furnished, but pillaged by the Swedes in 1658, who took away the furniture, among which were some statues of massy silver. It is built upon piles. E. Long. 12. 50. N. Lat. 56. 0.

CRONIUS, in chronology, the ancient name of the Athenian month Hecatombæon; which was the first of their year, and answered to the latter part of our June and beginning of July.—There were feasts called *Cronienes* celebrated at Athens in this month, in honour of Saturn, answering to the Saturnalia of the Romans.

CRONSLLOT. See **CRONSTADT**.

CRONSTADT, a sea-port town of Russia, where the greatest part of the navy is situated. It stands upon the island of Retusari in the Gulf of Finland; and was founded by Peter L. as being provided with the safest harbour in these parts, and as forming a strong bulwark by sea for the defence of the new metropolis. The only passage by which ships of burden can approach Petersburg lies on the south side of Retusari, through a narrow channel; one side whereof is commanded by Cronstadt, and the opposite by Cronslot and the citadel. Cronslot, which stands upon a small island of sand, is a circular wooden building, and surrounded with fortifications of wood that jut into the water. It contains a garrison of 100 men. The citadel is another small wooden fortress, constructed also upon an adjacent sand-bank, and capable of holding about 30 soldiers. All large vessels must sail between Cronstadt and these two fortresses exposed to the fire of the opposite batteries; for the other parts of the gulf are only from one to eleven feet in depth. All these fortifications were, at the time of their construction, esteemed places of considerable strength; but now they derive their consequence more from their past importance than from any resistance they could make against the attack of a powerful fleet.

Cronstadt is built upon the south eastern extremity of the island, and is defended towards the sea by wooden piers projecting into the water, and towards the land by ramparts and bastions. It is a very straggling place; and occupies, like all the Russian towns, a larger space of ground than the number of habitations.

Cronstadt tions seem to require; the houses are mostly of wood, excepting a few fronting the harbour, which are of brick stuccoed white. Among the latter are the imperial hospital for sailors, the barracks, and the academy for marines and officers of the navy. That seminary usually contains between three and four hundred cadets, who are clothed, maintained, and taught at the expence of the crown. They are admitted at the age of five, and are suffered to remain until they reach their seventeenth year. They learn accounts, mathematics, drawing, fortification, and navigation; and have masters in the French, German, English, and Swedish languages. They are trained to naval affairs, and make an annual cruise in the Baltic as far as Revel.—Cronstadt has a separate haven appropriated to the men of war, and another to merchant ships. Close to the haven for merchant ships is a canal and several dry docks, begun in 1719 by Peter I. for the purpose of refitting the men of war. This useful work was neglected under his successors, and was not completed until the reign of his daughter Elizabeth. It has been still further beautified and improved by the present empress; and is now applied for building as well as careening ships of the line. At the extremity of these docks is a great reservoir, 568 feet in length, which contains water sufficient, and half the quantity over, to supply all the docks; which is pumped into it by means of a fire engine, the diameter of whose cylinder is six feet. The length of this work, from the beginning of the canal to the end of the last dock, is 4221 feet. The sides of the docks are faced with stone, and the bottom is paved with granite. They are 40 feet deep and 105 broad; and are capable of containing nine men of war upon the stocks.

CRONSTAT, a town of Transylvania, near the frontiers of Moldavia, subject to the house of Austria. E. Long. 25. o. N. Lat. 47. o.

CROP, the highest part or end of any thing cut off. It is particularly used for the corn gathered off a field in harvest. See **AGRICULTURE**, Part II.

CROSIER, or **CROZIER**, a shepherd's crook; a symbol of pastoral authority, consisting of a gold or silver staff, crooked at the top, carried occasionally before bishops and abbots, and held in the hand when they give the solemn benedictions. The custom of bearing a pastoral staff before bishops is very ancient, as appears from the life of St Cæsarea of Arles, who lived about the year 500. Among the Greeks none but the patriarchs had a right to the crozier. The croziers were at first no more than simple wooden staves in form of a T, used to rest and lean upon. By degrees they were made longer; and at length arrived to the form we now see them of. Regular abbots are allowed to officiate with a mitre and crozier.

CROSIER, in astronomy, four stars in the southern hemisphere, in the form of a cross, serving those who sail in south latitudes to find the antarctic pole.

CROSLÉT, in heraldry, is when a cross is crossed again at a small distance from each of the ends. Upon says it is not so often borne by itself in arms as other crosses are, but often in diminutives, that is, in small crosslets scattered about the field. See **HERALDRY**.

CROSS, a gibbet made with two pieces of wood placed crosswise, whether they cross with right angles

at the top like a T, or in the middle of their length like an X. The cross to which our Saviour was fastened, and on which he died, was of the former kind; being thus represented by old monuments, coins, and crosses; and St Jerom compares it to a bird flying, a man swimming, or praying with his arms extended. The punishment of the cross was common among the Syrians, Egyptians, Persians, Africans, Greeks, Romans, and Jews.

The death of the cross was the most dreadful of all others, both for the shame and pain of it; and so scandalous, that it was inflicted as the last mark of detestation upon the vilest of people. It was the punishment of robbers and murderers, provided that they were slaves too; but otherwise, if they were free, and had the privileges of the city of Rome, this was then thought a prostitution of that honour, and too infamous a punishment for such a one, let his crimes be what they would.

The Mosaic law ordained, that the persons executed should not be left upon the tree after sun set, because he that is hanged in this manner is accursed of God, Deut. xxi. 22. The Jews believe, that the souls of those who remain upon the gibbet, and without burial, enjoy no peace, and receive no benefit from the prayers of other people; but wander up and down till their bodies are buried: which agrees with the notions that the Greeks and Romans had of this matter, as may be seen in *Hom. Il. 4.* and *Virg. Æneid. 6.*

The form of a cross being such as has been already described, the body of the criminal was fastened to the upright piece by nailing the feet to it, and on the other transverse piece generally by nailing the hands on each side. Now, because these parts of the body, being the instruments of action and motion, are provided by nature with a much greater quantity of nerves than others have occasion for; and because all sensation is performed by the spirit contained in these nerves; it will follow, as Stanhope observes, that wherever they abound, the sense of pain must needs in proportion be more quick and tender.

The Jews confess, that indeed they crucified people in their nation, but deny that they inflicted this punishment upon any one alive. They first put them to death, and then fastened them to the cross either by the hands or neck. But there are indisputable proofs of their crucifying men frequently alive. The worshippers of Baal-peor and the king of Ai were hung up alive; as were also the descendants of Saul, who were put into the hands of the Gibeonites, 2 Sam. xxi. 9.

Before crucifixion the criminal was generally scourged with cords: sometimes little bones, or pieces of bones, were tied to these scourges, so that the condemned person might suffer more severely. It was also a custom, that he who was to be crucified should bear his own cross to the place of execution. After this manner we find Christ was compelled to bear his own cross; and as he sunk under the burden, Simon the Cyrenian was constrained to bear it after him and with him. But whereas it is generally supposed that our Lord bore the whole cross, i. e. the long and transverse part both, this seems to be a thing impossible; and therefore Lipsius (in his treatise *De Supplicio Crucis*) has set the matter in a true light, when he tells us that

Cross. Jesus only carried the transverse beam; because the long beam, or the body of the cross, was either fixed in the ground before, or made ready to be set up as soon as the prisoner came: and from hence he observes, that painters are very much mistaken in their description of our Saviour carrying the whole cross.

There were several ways of crucifying; sometimes the criminal was fastened with cords to a tree, sometimes he was crucified with his head downwards. This way St Peter chose out of respect to his master Jesus Christ, not thinking himself worthy to be crucified like him; though the common way of crucifying was by fastening the criminal with nails, one through each hand, and one through both feet, or one through each of them: for this was not always performed in the same manner; the ancients sometimes representing Jesus Christ crucified with four nails, and sometimes with three. The criminal was fixed to the cross quite naked; and in all probability the Saviour of the world was not used with any greater tenderness than others upon whom this punishment was inflicted. The soldiers divided his cloaths among them, and cast lots for his tunic, which is an under garment worn over the flesh like a shirt.

The text of the gospel shews clearly, that Jesus Christ was fastened to the cross with nails; and the Psalmist (xxxii. 17.) had foretold long before, that they should pierce his hands and his feet: but there are great disputes concerning the number of these nails. The Greeks represent our Saviour as fastened to the cross with four nails; in which particular Gregory of Tours agrees with them, one at each hand and foot. But several are of opinion, that our Saviour's hands and feet were pierced with three nails only, viz. one at each hand, and one through both his feet: and the custom of the Latins is rather for this last opinion; for the generality of the old crucifixes made in the Latin church have only three nails. Nonnus thinks that our Saviour's arms were besides bound fast to the cross with chains; and St Hilary speaks of the cords where-with he was tied to it.

Sometimes they who were fastened upon the cross lived a good while in that condition. St Andrew is believed to have continued three days alive upon it. Eusebius speaks of certain martyrs in Egypt who were kept upon the cross till they were starved to death. Pilate was amazed at Jesus Christ dying so soon; because naturally he must have lived longer, if it had not been in his power to have laid down his life and to take it up again. The thighs of the two thieves who were crucified together with our Saviour were broken in order to hasten their death, that their bodies might not remain upon the cross on the Sabbath day (John xix. 31, 32, 33.), and to comply with the law of Moses, which forbids the bodies to be left there after sun-set. But among other nations they were suffered to remain upon the cross a long time. Sometimes they were devoured alive by birds and beasts of prey. Guards were appointed to observe that none of their friends or relations should take them down and bury them. The story of the Ephesian matron and the soldier who was set to guard the cross, is very well known. The Roman soldiers who had crucified Jesus Christ and the two thieves continued near the crosses till the bodies were taken down and buried.

Crosses were usually, in former times, erected on

the tops of houses, by which tenants pretended to claim the privileges of the Templars Hospitallers, to defend themselves against their rightful lords. This was condemned by the statute Wil. II. c. 37. It was usual also, in those days, to set up crosses in places where the corpse of any of the nobility rested as it was carried to be buried, that *a transeuntibus pro ejus animo deprecetur*. Crosses, &c. are forbidden, to be brought into England by 13 Eliz. c. 2. on pain of a *præmunire*, &c.

Invention of the Cross, an ancient feast solemnized on the third of May, in memory of St Helena's (the mother of Constantine) finding the true cross of Christ deep in the ground on mount Calvary; where she erected a church for the preservation of part of it; the rest being brought to Rome and reposed in the church of the Holy Cross of Jerusalem.

Theodoret mentions the finding of three crosses; that of Jesus Christ and those of the two thieves; and that they distinguished between them by means of a sick woman, who was immediately healed by touching the true cross. The place is said to have been pointed out to her by St Quiriacus, then a Jew, afterwards converted and canonized.

Exaltation of the Cross, an ancient feast, held on the 14th of September, in memory of this, that Heraclitus restored to mount Calvary the true cross in 642, which had been carried off 14 years before by Cosroes king of Persia, upon his taking Jerusalem from the emperor Phocas.

The adoration of the cross appears to have been practised in the ancient church; inasmuch as the Heathens, particularly Julian, reproach the primitive Christians with it. And we do not find that their apologists disclaimed the charge. Mornay, indeed, asserted, that this had been done by St Cyril, but could not support his allegation at the conference of Fountainbleau. St Helena is said to have reduced the adoration of the cross to its just principle, since she adored in the wood, not the wood itself, which had been direct idolatry and Heathenism, but him who had been nailed to this wood. With such modifications some Protestants have been induced to admit the adoration of the cross. John Hubs allowed of the phrase, provided it were expressly added, that the adoration was relative to the person of Christ. But however Roman Catholics may seem to triumph by virtue of such distinction and mitigations, it is well known they have no great place in their own practice. Imbert, the good prior of Gascony, was severely prosecuted in 1683 for telling the people, that in the ceremony of adoring the cross, practised in that church on Good Friday, they were not to adore the wood, but Christ, who was crucified on it. The curate of the parish told them the contrary: it was the wood! the wood! they were to adore. Imbert replied, it was Christ, not the wood: for which he was cited before the archbishop of Bourdeaux, suspended from his functions, and even threatened with chains and perpetual imprisonment. It little availed him to cite the bishop of Meaux's distinction; it was answered that the church allowed it not.

Cross-Bearer (*port croix, cruciger*), in the Romish church, the chaplain of an archbishop or a primate, who bears a cross before him on solemn occasions.

The pope has the cross borne before him every where; a patriarch any where out of Rome; and primates,

Cross.

Crosses. mates, metropolitans, and those who have a right to the pallium, throughout their respective jurisdictions.

Gregory XI. forbade all patriarchs and prelates to have it borne in presence of cardinals. A prelate bears a single cross, a patriarch a double cross, and the pope a triple one on their arms.

Cross-Bearers also denote certain officers in the inquisition, who make a vow before the inquisitors or their vicars to defend the Catholic faith, though with the loss of fortune and life. Their business is to provide the inquisitors with necessaries. They were formerly of great use; but in process of time some of their constitutions were changed, and they were called of the penance of St Dominic.

Pectoral Cross, is a cross of gold or silver, or other precious materials, often enriched with diamonds, which the bishops, archbishops, &c. and regular abbesses, wear hanging from the neck.

Order of the Cross, or *Croisade*, an order of ladies instituted in 1668 by the empress Eleonora de Gonzagua, wife of the emperor Leopold; on occasion of the miraculous recovery of a little golden cross, wherein were inclosed two pieces of the true cross, out of the ashes of part of the palace. It seems the fire had burnt the case wherein it was inclosed, and melted the crystal, yet the wood remained untouched.

Maid of the Cross, a community of young women instituted in 1265 at Roye in Picardy, and since dispersed to Paris and other towns. They instruct young persons of their own sex. Some take the three vows of poverty, chastity, and obedience; others retain their liberty. They are under the direction of a superior.

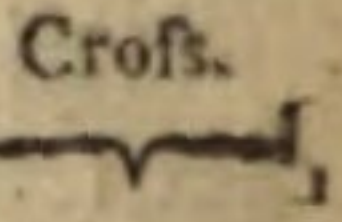
Cross, in heraldry, is defined by Guillim, an ordinary composed of four fold lines; whereof two are perpendicular, and the other two transverse; for so we must conceive of them, though they be not drawn throughout, but meet by couples, in four right angles, near the fesspoint of the escutcheon. See *HERALDRY*.

This bearing was first bestowed on such as had performed, or at least undertaken, some service for Christ, and the Christian profession; and is held by divers the most honourable charge in all heraldry. What brought it into such frequent use, was the ancient expeditions into the Holy Land; and the holy war pilgrims, after their pilgrimage, taking the cross for their cognizance; and the ensign of that war being the cross. In those wars, says Mackenzy, the Scots carried St Andrew's cross; the French a cross argent; the English a cross or; the Germans, sable; the Italians, azure; the Spaniards, gules.

St George's Cross, or the red cross, in a field argent, is now the standard of England; that saint being the reputed patron of this nation.

Nor is it only in crosses that the variety is so great; the like is found in many other bearings, and particularly in lions, and the parts of them; whereof Colombiere gives us no less than 96 varieties. Leigh mentions but 46 several crosses; Sylvanus Morgan, 26; Upton, 30; Johannes de Bado Aureo, 12; and so others, whom it is needless to mention. Upton owns he dares not presume to ascertain all the various crosses used in arms, for that they are at present almost innumerable; and therefore he only takes notice of such as he had seen used in his own time.

Nº 95.

Cross, in mining, two nicks cut on the superficies of the earth, thus , which the miners make when they take the ground to dig for ore. This cross gives the miners three days liberty to make and to set on stones. As many of these crosses as the miner makes, so many mears of ground he may have in the vein, provided he set on stones within three days after making his cross or crosses. But if he make but one cross, and a slander by makes the second, and a stranger makes the third, every one is served with the next mear, according as they have first or last, sooner or later, made their cross or crosses upon the ground.

Cross, in coins, a name given to the right side or face, the other being called the *pile* or *reverse*. It has been a common error, that the reverse was meant by the cross; because at this time, with us, it is marked with figures disposed in that form: but the stamping the head of the prince in these kingdoms on the right side of the coin, was preceded by a general custom of striking on that part the figure of a cross; while the other, called the *pile*, contained the arms, or some other device.

Cross, instead of a signature to a deed, &c. is derived from the Saxon practice of affixing the sign of the cross, whether they could write or not.

Cross-Bar Shot, a bullet with an iron bar passing through it, and standing six or eight inches out at both sides. It is used at sea for destroying the enemy's rigging.

Cross-Bill, in ornithology. See *LOXIA*.

Cross-Bill, in chancery, is an original bill, by which the defendant prays relief against the plaintiff.

Cross-Bows. See *BOWS* and *ARCHERY*.

Cross-grained Stuff, in joinery. Wood is said to be cross-grained, when a bough or branch has shot out of it; for the grain of the branch shooting forward, runs athwart that of the trunk.

In wood well grown this defect is scarce perceivable, except in working; but in deal-boards these boughs make knots. If the bough grew up with the young trunk, instead of a knot is found a curling in the stuff, very sensible under the plane.

Cross-Jack, pronounced *cro-jack*, a sail extended on the lower yard of the mizen-mast, which is hence called the *cross-jack yard*. This sail, however, has generally been found of little service, and is therefore very seldom used.

Cross-Piece, a rail of timber extended over the windlass of a merchant ship from the knight heads to the belfry. It is stuck full of wooden pins, which are used to fasten the running rigging as occasion requires. See *WINDLASS*.

Cross-Tining, in husbandry, a method of harrowing land, consisting in drawing the harrow up the interval it went down before, and down that which it was drawn up.

Cross-Trees, certain pieces of timber, supported by the cheeks and trestle-trees, at the upper ends of the lower masts, athwart which they are laid to sustain the frame of the top.

Cross Tree Yard, is a yard standing square, just under the mizen-top, and to it the mizen-top is fastened below. See *Cross Jack*.

Cross Wort, in botany. See *VALENTIA*.

Ordeal of the Cross, a species of trial frequently practised in the days of superstition. See *ORDEAL*.

CROSS,

Cross
||
Crotalum.

CROSS, an English artist, famous only for copying, in the reigns of Charles I. and Charles II. Of this talent there is a story current, more to the credit of his skill than of his probity. He is said to have been employed by Charles I. to copy the celebrated Madona of Raphael in St Mark's church at Venice; and that, having obtained leave of the state for that purpose, he executed his piece so well as to bring away the original and leave his copy in the place of it. The deception was not detected until it was too late to recover the loss; and this piece was bought in Oliver's time by the Spanish ambassador for his master, who placed it in the Escorial.

CROSSEN, a handsome town of Silesia in Germany, and capital of a principality of the same name. It is situated at the confluence of the rivers Bobar and Oder, in a fertile country abounding in wine and fruits. There is a bridge over the Oder which is fortified. E. Long. 15. 20. N. Lat. 52. 5.

CROSSOSTYLUS, in botany: A genus of the polyandria order, belonging to the monadelphia class of plants. The calyx is a quadrangular, quadrifid, turbinate perianthium: the corolla consists of four elliptical petals; the stamina are 20 filiform filaments, almost the length of the calyx; the antheræ small and roundish; the pericarpium an hemispherical, unilocular berry, with many striæ on its upper part; the seeds numerous and roundish.

CROTALARIA, **RATTLE-WORT**: A genus of the decandria order, belonging to the diadelphia class of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The legumen is turgid, inflated, and pedicellated; the filaments are coalited with a fissure on the back. There are 11 species, all of them natives of warm climates. They rise from 18 inches to 5 feet in height, and are adorned with flowers of a blue or yellow colour. The most remarkable species is the *retusa*, with simple oblong wedged leaves. It is a native of the island of Ceylon and some other parts of the East Indies. The flowers are yellow, the pods smooth, cylindrical, inflated, and placed horizontally: they are filled with seeds, which, when dried, and shaken by the slightest wind, emit a rattling noise: and this, by the rude inhabitants of the countries where the plant is native, is attributed to the devil, who is thought to deliver his oracles in this whimsical manner.

CROTALO, an instrument of military music, like that described in the next article. The Turks are the first, among the moderns, who introduced the use of it for their troops. It is now common in Flanders and Florence, and other territories on the continent. It has only one tone; but its effect in marking time may be distinctly heard through the noise of forty drums. This is the same instrument with the ancient cymbalum.

CROTALUM, an ancient kind of castagnetta, or musical instrument, found on medals, in the hands of the priests of Cybele. The crotalum differed from the sistrum; though authors frequently confound the two. It consisted of two little brass plates or rods, which were shaken in the hand, and in striking against each other made a noise.

It was sometimes also made of a reed split length-
Vol. V. Part II.

wise; one part whereof they struck against the other; and as this made a noise somewhat like that of a crane's bill, they called that bird *crotalifria*, a player on the crotala: and Aristophanes calls a great talker a *crotalum*.

Clemens Alexandrinus attributes the invention to the Sicilians; and forbids the use thereof to the Christians, because of the indecent motions and gestures that accompany it.

CROTALUS, or **RATTLE-SNAKE**, in zoology, a genus belonging to the order of amphibia serpentes; the characters of which are these: the belly is furnished with scuta, and the tail has both scuta and scales; but the principal characteristic of this genus is the rattle at the end of the tail. The rattles consist of several articulated crustaceous, or rather horny, bags, which make a considerable rattling noise when the creature moves, and serves to warn people of their approach. There are five species; and the bite of every one of them is so highly poisonous, that it generally kills in a short time. Of these we have no account that can be depended upon, except that given by Mr Catesby of the horridus, or American rattle-snake. This grows sometimes to the length of 8 feet, and weighs between 8 and 9 pounds. The colour of the head is brown; the eye red; the upper part of the body of a yellowish-brown colour, transversely marked with irregular broad black lists. The rattle is of a brown colour, composed of several horny, membranous, cells, of an undulated pyramidal figure. These are articulated within one another in such a manner that the point of the first cell reaches as far as the basis of the protuberant ring of the third, and so on; which articulation, being very loose, gives liberty to the parts of the cells that are inclosed within the outward rings to strike against the sides of them, and so to cause the rattling noise which is heard when the snake shakes its tail. This is the most inactive and slow moving of all the snakes, and is never the aggressor except in what it preys upon. The above gentleman is of opinion that no remedy is yet discovered for the bite of this animal. He had frequently access to see Indians bit by it, and always thought that those who recovered were cured more through the force of nature, or by reason of the slightness of the bite, than by the remedies used. He tells us, that the Indians know their destiny the moment they are bit; and if the bite happens to be on any of the large veins, they apply no remedies, as knowing them to be entirely useless. He believes the reports of the fascinating power of this serpent, though he never had an opportunity of seeing it. See the articles *POISON* and *SERPENT*.

CROTALYSTRIÆ, in antiquity, a kind of morrice dancers, admitted to entertainments, in order to divert the company with their dancing and playing on an instrument called *crotalum*, whence they had their name.

CROTCHET, in music, one of the notes or characters of time, equal to half a minim, and double of a quaver.

CROTCHETS are also marks or characters, serving to inclose a word or sentence which is distinguished from the rest, being generally in this form [].

CROTO, or **CROTON**, (anc. geog.), a noble city of the Bruttii, built by the Achæans, an hundred and

Crotalus
||
Croto.

Plate
CXLIX.

Croto. fifty stadia to the north of Lacinium, and in the neighbourhood of Metapontum. It was twelve miles in compass before the arrival of Pyrrhus into Italy; but after the desolation produced by that war, scarce half of it was inhabited. The citadel on one side hung over the sea, on the other towards the land. It was naturally strong from its situation, but afterwards walled round; on which side it was taken by Dionysius by stratagem, by means of the rocks behind it.

Pythagoras, after his long peregrinations in search of knowledge, fixed his residence in this place, which some authors think his native one, at least that of his parents, supposing him to have been born in the isle of Samos, and not at some town of that name in Italy. This incomparable sage spent the latter part of his life in training up disciples to the rigid exercise of sublime and moral virtue, and instructing the Crotonites in the true arts of government, such as alone can insure happiness, glory, and independence.

Under the influence of this philosophy, the Crotonites inured their bodies to frugality and hardships, and their minds to self-denial and patriotic disinterestedness. Their virtues were the admiration of Greece, where it was a current proverb, that the last of the Crotonites was the first of the Greeks. In one Olympiad, seven of the victors in the games were citizens of Croton; and the name of Milo is almost as famous as that of Hercules. The vigour of the men and beauty of the women were ascribed to the climate, which was believed to be endowed with qualities peculiarly favourable to the human system. Their physicians were in high repute; and among these, Alcmeon and Democides rendered themselves most conspicuous. Alcmeon was the first who dared to amputate a limb, in order to save the life of a patient; and also the first writer who thought of inculcating moral precepts under the amusing cloak of apologues. This invention is more commonly attributed to Æsop, as he was remarkably ingenious in this species of composition. Democides was famous for his attachment to his native soil. Though caressed and enriched by the king of Persia, whose queen he had snatched from the jaws of death, he abandoned wealth and honours, and by stratagem escaped to the humble comforts of a private life at Croton.—The Pythagoreans are said to have discovered that disposition of the solar system, which, with some modifications, has been revived by Copernicus, and is now universally received, as being most agreeable to nature and experiment. Theano, the wife of Pythagoras, and many other women, emulated the virtues of their husbands.

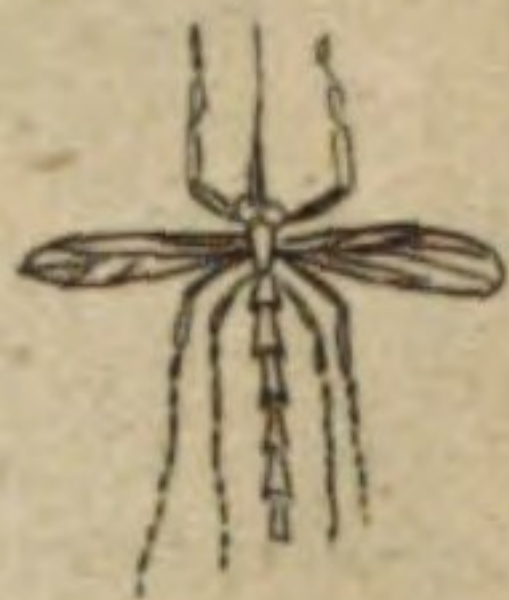
In those fortunate days the state of Croton was most flourishing. Its walls inclosed a circumference of 12 miles. Of all the colonies sent out from Greece, this alone furnished succour to the mother country when invaded by the Persians. By its avenging arms the Sybarites were punished for their shameful degeneracy; but victory proved fatal to the conquerors, for riches, and all their pernicious attendants, insinuated themselves into Croton, and soon contaminated the purity of its principles. Indeed, the very constitution of human nature militates against any long continuance in such rigid practices of virtue; and therefore it is no wonder if the Crotonites fell by degrees

into the irregularities they once abhorred. Not long after, the Locrians, who were less corrupted, defeated them on the banks of the Sagra, and reduced the republic to distress and penury. This restored the remaining Crotonites to their pristine vigour of mind, and enabled them to make a brave, though unsuccessful resistance, when attacked by Dionysius of Syracuse. They suffered much in the war with Pyrrhus, and, by repeated misfortunes, decreased in strength and numbers, from age to age, down to that of Hannibal, when they could not muster 20,000 inhabitants. This small population being incapable of manning the extensive works erected in the days of prosperity, Croton was taken by the Carthaginians, and its citizens transported to Locri. The Romans sent a colony hither 200 years before Christ. In the Gothic war, this city rendered itself conspicuous by its fidelity to Justinian, and Totila besieged it long in vain.

CROTON, WILD RICINUS: A genus of theadelphia order, belonging to the monœcia class of plants; and in the natural method ranking under the 38th order, *Tricocca*. The male calyx is cylindrical and quinque-dentated, the corolla is pentapetalous; the stamina from 10 to 15. The female calyx is polyphyllous; no corolla; three bifid styles; the capsule trilocular; one seed. There are 21 species; of which the most remarkable are, 1. The tinctorium, or plant from which the French turnsole is made. This grows naturally in the south of France: it is an annual plant, rising about 9 inches high, with an herbaceous branching stalk, garnished with irregular or rhomboidal figured leaves, which are near two inches long and an inch and a quarter wide in their widest part. These stand upon slender footstalks near four inches long. The flowers are produced in short spikes from the sides of the stalks, at the end of the branches; the upper part of the spike is composed of male flowers, having many stamina which coalesce at the bottom; the lower part hath female flowers, which have each a roundish, three-cornered, germen; these afterwards become a roundish capsule with three lobes, having three cells, each including one roundish seed. This flowers in July; but unless the plants are brought forward on a hot-bed, they do not ripen seeds in this country. From this plant is made the turnsole used for colouring wines and jellies. It is made of the juice which is lodged between the empalement and the seeds; which, if rubbed on cloths, at first appears of a lively green, but afterwards changes to a bluish purple colour. If these cloths are put into water, and afterwards wrung, they will dye the water to a claret colour. The rags thus dyed are brought to this country, and sold in the druggists shops under the name of *turnsole*. 2. The sebifera, or tallow-tree, with rhomboidal egg-shaped leaves, pointed, smooth and very entire. It is about the height of a cherry-tree; its leaves in form of a heart, of a deep, shining, red colour, and its bark very smooth. Its fruit is enclosed in a kind of pod, or cover, like a chestnut, and consists of three round white grains, of the size and form of a small nut, each having its peculiar capsula, and within that a little stone. This stone is encompassed with a white pulp, which has all the properties of true tallow, as to consistence, colour, and even smell: and accordingly the

Chi-

Culex



Curculio



Shining Cuckow.



Crotophaga.
Ani.



Crax subra.



Croton
||
Croto-
phaga.

Chinese make their candles of it; which would doubtless be as good as those in Europe, if they knew how to purify their vegetable tallow as well as we do our animal kind, and to make their wicks as well. 3. The aromaticum, with heart-shaped serrated leaves, and an arborescent stem. The bark of this tree is the same as the cascarilla and eleutheria; though these have been considered by some as distinct barks, and sold in the shops as different productions. It is a hot, acrid, aromatic bitter, resembling in appearance the Peruvian bark, but is more bitter and pungent, though not so rough and astringent. It was first introduced into Europe about the end of the last century, and seems first to have been used in Germany, where it is still in very high esteem. There it is frequently employed against common intermittent fevers, in preference to the Peruvian bark, as being less subject to some inconveniences, which the latter on account of its great astringency is apt to occasion. It is also said to have been employed with great success in some very dangerous epidemic fevers attended with petechiæ; and it is frequently employed with advantage in flatulent colics, internal hemorrhagies, dysenteries, diarrhœas, and similar disorders. In Britain it has been used by some practitioners, particularly by the late Dr Keir of London, who was of opinion that it was by no means employed so generally as it deserved to be. Its virtues are partially extracted by water, and totally by rectified spirit, but it is most effectual when given in substance. 4. The cascarilla, described by Linnæus as producing the officinal bark of that name, is, according to Dr Wright †, the wild rosemary shrub of Jamaica, the bark of which has none of the sensible qualities of the true cascarilla or eleutheria above described.

CROTONA, a town of Italy, in the kingdom of Naples, seated on the gulph of Taranto, with a bishop's see and citadel. E. Long, 17. 27. N. Lat, 39. 10.

† *Medical Journal*, vol. viii.

CROTOPHAGA, in ornithology, a genus of bird belonging to the order of picæ; the characters of which are: The bill is thin, compressed, greatly arched, half oval, and cultrated at top; the nostrils are round; the tongue flat, and pointed at the end; the tail consists of ten feathers; and the toes are placed two and two. The most remarkable species is the ani, which is about the size of a blackbird: the colour of the whole bird is black, in some parts glossed with purple, and about the neck faintly tinged with green on the margins: the base of the bill is furnished with black bristles, which turn forwards: the eye-lids have long hairs like eye-lashes: the tail is six inches long, and much cuneated; and the legs are black. This species is found in Jamaica, St Domingo, and other islands in the West Indies; also at Cayenne and other parts of South America. Contrary to all other birds, they have the singularity of many lying in the same nest; to make which, they all unite in concert, and after laying their eggs, sit on them close to each other in order to hatch them, each unanimously striving to do the best for the general good; and when the young are hatched, the parents, without reserve, do the best to feed the whole flock. Still a greater singularity occurs, which is, that as soon as each female lays her eggs she covers them with leaves, doing the same thing whenever she is obliged to leave the

Plate CLI.

nest for food: this might be necessary in a cold climate; but why it should be wanted in a hot one seems not clear, especially as it has not been observed in other birds. It generally has two broods in a year, except accidents happen; in which case it has been known to make three nests. The eggs are about the size of those of a pigeon, of a sea-green colour, spotted at the ends. Their food is various; worms, insects, fruits, and grain, according to the season. There is a variety called the greater ani, which is about the size of a jay, differing no otherwise from the former but in size. They ought, however, to be considered as two distinct species: for they never mix together; though each have the same manners, with this difference only, that the smaller frequent the open savannas, the larger only the salt marshes near the sea-coasts. It is said that they are easily made tame, and will learn to talk like parrots. The male and female are both alike. Both species are easy to be shot, not being so wild as many other birds; but are known to chatter much on the sight of a man, though they do not fly to a great distance; hence are not well relished by sportsmen, as, like the jays in England, they are the occasion of hindering his sport in respect to other game, without making him amends in their own flesh, which is never sought after for food, being rank and unsavoury.

CROTOY, a town of France, in Picardy, and in Ponthieu. The fortifications are demolished. It is seated at the mouth of the river Somme. E. Long. 1. 45. N. Lat. 50. 15.

CROUCHED FRIARS. See CROISIERS.

CROUP, in medicine. See MEDICINE-Index.

CROUP of a Horse, in the manege, the extremity of the reins above the hips.

CROUPADE, in the manege, a leap, in which the horse pulls up his hind legs, as if he drew them up to his belly.

CROUTE, SOUR CROUTE, or KROUTE. As this preparation of cabbage has been found of sovereign efficacy as a preservative in long voyages from the sea-scurvy, it may not be unacceptable to give a concise account of the process for making it, according to the information communicated by an ingenious German gentleman.

The soundest and most solid cabbages are selected for this use, and cut very small, commonly with an instrument made for this purpose, not unlike the plain which is used in this country for slicing cucumbers. A knife is used when the preparation is made with greater nicety. The cabbage thus minced is put into a barrel in layers, hand high, and over each is strewed a handful of salt and carraway seeds; in this manner it is rammed down with a rammer *stratum super stratum*, till the barrel be full; when a cover is put over it and pressed down with a heavy weight. After standing some time in this state it begins to ferment; and it is not till the fermentation has entirely subsided that the head is fitted to it, and the barrel is finally shut up and preserved for use. There is not a drop of vinegar employed in this preparation. The Germans write this preparation in the following manner: *Sauer kraut*, or *sauer kohl*; that is, in their language, "sour herb, or sour cabbage."

CROUSAZ (John Peter de), a learned philosopher and

Crotoy
||
Croufaz.

Crow,
Crowd.

and mathematician, was born in 1663: having made great progress in the mathematics and the philosophy of Des Cartes, he travelled to Geneva, Holland, and France; was successively professor in several universities; and at length was chosen governor to Prince Frederic of Hesse-Cassel, nephew to the king of Sweden. He wrote many works; the most esteemed of which are, 1. His Logic, the best edition of which is that of 1741, in 6 vols 8vo. 2. A Treatise on Beauty. 3. A Treatise on the Education of Children, 2 vols 12mo. 4. Several Treatises on Philosophical and Mathematical Subjects, &c. He died at Lausanne in 1748.

CROW, in ornithology. See **CORVUS**.

Crow, in mechanics, a kind of iron lever, with a claw at one end and a sharp point at the other; used for heaving or purchasing great weights.

Crow's Bill, among surgeons, a kind of forceps for drawing bullets and other foreign bodies out of wounds.

Crow's Feet, in the military art, machines of iron, having four points, each about three or four inches long, so made, that whatever way they fall there is still a point up: they are thrown upon breaches, or in passes where the enemy's cavalry are to march, proving very troublesome, by running into the horse's feet and laming them.

Crow-Foot, on ship board, a complication of small cords spreading out from a long block, like the smaller parts which extend from the back-bone of a herring (Plate CL.). It is used to suspend the *ownings*; or to keep the top-sails from striking violently, and fretting against the tops.

Crow-Net, is an invention for catching wild-fowl in the winter season, and may be used in the day-time. This net is made of double thread, or fine pack-thread; the meshes should be two inches wide, the length about ten yards, and the depth three; it must be verged on the side with good strong cord, and stretched out very stiff on long poles prepared for that purpose. When you are come to the place where you would spread your net, open it, and lay it out at its full length and breadth; then fasten the lower end of the net all along the ground, so as only to move it up and down; the upper end of the net must stand extended on the long cord; the further end thereof being staked first to the earth by a strong cord about five yards distant from the net. Place this cord in an even line with the lower edge of the net. The other end must be at least 25 yards distant to reach into some natural or artificial shelter, by the means of which you may lie concealed from the fowl, otherwise no good success can be expected. The net must be placed in such exact order that it may give way to play on the fowl on the least pull of the cord, which must be done smartly, lest the fowl should prove too quick for you. This net may be used for pigeons, crows, or other birds, on corn-fields newly sown; as also in stubble-fields, provided the stubble conceals the net from the birds.

CROWD, in a general sense, signifies a number of people assembled in a place scarce big enough to hold them all.

To CROWD, in the sea-language, is to carry an extraordinary force of sail upon a ship, in order to ac-

celerate her course on some important occasion; as in Crowland, pursuit of, or flight from, an enemy; to escape any immediate danger, &c.

CROWLAND, a town in Lincolnshire, seated in the fens, in a dirty soil, and had formerly an abbey of very great note. There is no coming at it but by narrow causeways, which will not admit a cart. It has three streets, separated from each other by water-courses, whose banks are supported by piles, and set with willow trees. Their chief trade is in fish and fowl, which are in great plenty in the adjacent pools and marshes. W. Long. 0. 10. N. Lat. 52. 40.

CROWN, an ornament worn on the head by kings, sovereign princes, and noblemen, as a mark of their dignity.

In scripture there is frequent mention of crowns, and the use of them seems to have been very common among the Hebrews. The high priest wore a crown, which was a fillet of gold placed upon the forehead, and tied with a ribbon of hyacinth colour, or azure blue. It seems also as if private priests, and even common Israelites, wore also a sort of crown, since God commands Ezekiel not to take off his crown, nor assume the marks of one in mourning. This crown was no more than a ribbon or fillet, with which the Jews and several people in the east girt their heads. And indeed the first crowns were no more than a bandelet drawn round the head, and tied behind, as we still see it represented on medals round the heads of Jupiter, the Ptolemies, and kings of Syria. Afterwards they consisted of two bandelets; by degrees they took branches of trees of divers kinds; at length they added flowers, insomuch that Claudius Saturninus says, there was not any plant whereof crowns had not been made. The woods and groves were searched to find different crowns for the several deities; and they were used not only on the statues and images of the gods, by the priests in sacrificing, and by kings and emperors, but also on altars, temples, doors of houses, sacred vessels, victims, ships, &c.

The Roman emperors had four kinds of crowns, still seen on medals, viz. a crown of laurel, a radial or radiating crown, a crown adorned with pearls and precious stones, and the fourth a kind of bonnet or cap, something like the mortar.

The Romans had also various kinds of crowns, which they distributed as rewards of military achievements; as, 1. The oval crown, made of myrtle, and bestowed upon generals, who were entitled to the honours of the lesser triumph, called *ovation*. 2. The naval or rostral crown, composed of a circle of gold, with ornaments representing beaks of ships, and given to the captain who first grappled, or the soldier who first boarded, an enemy's ship. 3. The crown called in Latin *vallis*, or *castrensis*, a circle of gold raised with jewels or palisades; the reward of him who first forced the enemy's entrenchments. 4. The mural crown, a circle of gold indented and embattled; given to him who first mounted the wall of a besieged place, and there lodged a standard. 5. The civic crown, made of the branch of a green oak, and given him who had saved the life of a citizen. 6. The triumphal crown, consisting at first of wreaths of laurel, but afterwards made of gold; proper to such generals

Crown. as had the honour of a triumph. 7. The crown called *obsidionalis*, or *graminea*, made of grafs growing on the place; the reward of a general who had delivered a Roman army from a siege. 8. The radial crown, given to princes at their translation among the gods. We meet also with the *corona aurea*, often bestowed on soldiers, without any other additional term; athletic crowns, and crowns of laurel, destined to crown victims at the public games, poets, orators, &c. All these crowns were marks of nobility to the wearers; and upon competitions with rivals for rank and dignities, often determined the preference in their favour. See Plate CL. For an account of modern crowns, see HERALDRY.

CROWN is also used to signify the possessions and dignity of a king. The crown of England, according to Sir William Blackstone, is, by common law and constitutional custom, hereditary; and this in a manner peculiar to itself: but the right of inheritance may from time to time be changed or limited by act of parliament, under which limitations the crown still continues hereditary. See SUCCESSION.

Pleas of the Crown. See PLEAS.

CROWN, in commerce, is a general name for coins, both foreign and domestic, of or near the value of five shillings Sterling. In its limited sense, crown is only applicable to that popular English coin which bears the name, and which is equivalent to sixty English pence or five shillings, or to six livres French money. But, in its extensive sense, it takes in several others; as the French *ecu*, which we call the French crown, struck in 1641 for sixty sols, or three livres; also the patagon, dollar, ducatoon, rixdollar, and piastre or piece of eight.

CROWN, in an ecclesiastical sense, is used for the clerical tonsure; which is the mark or character of the Romish ecclesiastics. This is a little circle of hair shaved off from the crown of the head; more or less broad, according to the quality of the orders received: That of a mere clerk is the smallest; that of priests and monks the largest. The clerical crown was anciently a round list of hair, shaved off around the head, representing a real crown: this is easily observable in several ancient statues, &c. The religious of St Dominic and St Francis still retain it.

CROWN, among jewellers, the upper work of the rose diamond, which all centres in the point at the top, and is bounded by the horizontal ribs.

CROWN-Office, an office belonging to the king's bench court, of which the king's coroner or attorney is commonly master. In this office, the attorney general and clerk of the crown severally exhibit informations for crimes and misdemeanours at common law, as in the case of batteries, conspiracies, libelling, &c. on which the offender is liable to pay a fine to the king.

CROWN-Glass, denotes the finest sort of window-glass. See GLASS.

CROWN-Scabs, in farriery. See there, § xxxvi. 2.

CROWN-Wheel of a Watch, the upper wheel next the balance, which by its motion drives the balance, and in royal pendulums is called the *swing-wheel*.

CROWN-Imperial, in botany. See FRITILLARIA.

CROWN-Work, in fortification, is an out-work running into the field; designed to keep off the enemy,

gain some hill or advantageous post, and cover the other works of the place. The crown-work consists of two demi-bastions at the extremes, and an entire bastion in the middle, with curtains.

CROWNE (John), a celebrated dramatic writer, born in Nova Scotia, where his father was a minister. Being impatient of the gloomy restraint of that country, he came to England, where he was reduced to enter into the service of an old lady; of which he was soon as weary as he had been of America. He then had recourse to his pen, which quickly procured him favour at court; but this kind of subsistence proving precarious, he ventured to solicit Charles II. for some establishment. Charles promised to provide for him, but insisted first on having another comedy; and suggested to him the plan of a Spanish play, from which Crowne produced the comedy of *Sir Courtly Nice*: but the sudden death of the king on the last day of the rehearsal, plunged him at once from his pleasing expectations into disappointment and distress, and left him no resource but his wits. He died some time about the year 1703; and left behind him 17 tragedies and comedies, some of which are acted with great success. His chief excellency lay in comedy; yet his tragedies are far from being contemptible. His plots are for the most part his own invention; his characters are in general strongly coloured and highly finished; and his dialogue lively and spirited, attentively diversified, and well adapted to the several speakers. So that on the whole he may assuredly be allowed to stand at least in the third rank of our dramatic writers.

CROWNING, in architecture, is understood, in the general, of any thing that terminates or finishes a member or decoration. Thus, a cornice, a pediment, &c. are called *crownings*. Thus also the abacus is said to crown the capital; and thus any member or moulding is said to be crowned when it has a fillet over it; and a niche is crowned when it is covered with a capital.

CROWNING, in sea-language, denotes the finishing part of a knot made at the end of a rope. It is performed by interweaving the ends of the different strands artfully amongst each other, so as that they may not become loosened or untwisted. They are useful in all kinds of stoppers.

CROWTH, or **CRUTH**. See CRUTH.

CROXAL (Samuel), an ingenious English divine, who in his youth wrote the celebrated poem intitled *The Fair Circassian*. He had the livings of Hampton in Middlesex; and the united parishes of St Mary Somerset, and St Mary Mounthaw, in London; both which he held till his death in 1751. He published many other poems and translations, with an entire English edition of *Æsop's Fables*. In consequence of his attachment to Whig principles, he enjoyed some other preferments, and was chaplain in ordinary to George II.

CROYDON, a town in Surry in England. Its situation is low, near the spring-head of the river Wandel, and it is in a manner surrounded with hills. It is pretty large, and is chiefly noted for being the seat of the archbishop of Canterbury. It has a large handsome church, an hospital, and a free school. W. Long. 0. 5. N. Lat. 51. 22.

CRUCIAL

Crowne
|| 1
Croydon.

Crucial
||
Crumen-
tata.

CRUCIAL incision, in surgery, an incision made in the form of a cross.

CRUCIANELLA, PETTY MADDER: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 47th order, *Stellata*. The corolla is monopetalous and funnel-shaped, with the tube filiform and the limb unguiculated, or having an inflexed segment on the top of each segment; the calyx is diphyllous, and there are two linear seeds. There are five species, natives of the southern parts of Europe; but none of them possessed of any remarkable quality.

CRUCIBLE, a chemical vessel made of earth, and so tempered and baked as to endure the greatest fire. They are used to melt metals, and to flux minerals, ores, &c. See *CHEMISTRY-Index*.

CRUCIFIX, a cross upon which the body of Christ is fastened in effigy, used by the Roman Catholics to excite in their minds a strong idea of our Saviour's passion.

They esteem it an essential circumstance of the religious worship performed at the altar; and on Good Friday they perform the ceremony of adoring it, which is done in these words, *O crux ave, spes unica*; "Hail, thou cross, our only hope." The officiating priest uncovers the crucifix, elevates it with both his hands, and says, *Ecce lignum crucis*; "Behold the wood of the cross." The people answer, *in quo salus mundi pendit*; "on which the Saviour of the world suffered death." Then the whole congregation bow with great reverence, and devoutly kiss the holy wood.

CRUCIFIXION, a capital punishment by nailing the criminal to a cross. See *Cross*.

CRUCIFORM, in general, something disposed cross-ways; but more especially used by botanists, for flowers consisting of four petals disposed in the form of a cross.

CRUCITA, in botany, a genus of the digynia order, belonging to the tetrandria class of plants, and in the natural method ranking with those the order of which is doubtful. The interior calyx is tetraphyllous, the exterior calyx triphyllous; there is no corolla, and only one seed.

CRUDE, an epithet given to something that has not passed the fire or had a proper degree of coction.

CRUDITY, among physicians, is applied to undigested substances in the stomach; to humours in the body which are unconcocted, and not prepared for expulsion; and to the excrements.

CRUISE, from the German *kruifs*, "across," signifies to cross to and fro, to sail up and down within a certain space of the sea, called the *cruising* latitude, in quest of vessels, or fleets of an enemy, &c.

CRUISERS, in the navy, are small men of war made use of to and fro in the channel, and elsewhere, to secure our merchant ships and vessels from the enemy's small frigates and privateers. They are generally such as sail well, and are commonly well manned: and indeed the safety of the trade in the channel, and up and down the soundings, and other places, absolutely requires the constant keeping out such ships at sea.

CRUMENTATA, among zoologists, animals fur-

nished with a pouch or bag, wherein to receive their young in time of danger; as the opossum. See *DELPHUS*.

CRUOR, sometimes signifies the blood in general; sometimes only the venous blood; and sometimes extravasated or coagulated blood; but is most frequently used for the red globules of the blood, in contradistinction to the limpid or serous part.

CRUPPER, in the manege, the buttocks of a horse, the rump; also a thong of leather put under a horse's tail, and drawn up by thongs to the buckle behind the saddle, so as to keep him from casting the saddle forwards on his neck.

CRURÆUS, or **CRUREUS**, *Musculus*, in anatomy, a fleshy mass, covering almost all the foreside of the os femoris, between the two vasti, which likewise cover the edges of this muscle on each side. See *ANATOMY, Table of the Muscles*.

CRURAL, in anatomy, an epithet given to the artery which conveys the blood to the crura or legs, and to the vein by which this blood returns towards the heart. See *ANATOMY, p. 751*.

CRUS, in anatomy, all that part of the body contained between the buttocks and the toes.

CRUSADO, in commerce, a Portuguese coin, struck under Alphonso V. about the year 1457, at the time when pope Calixtus sent thither the bull for a croisade against the infidels. This coin has a cross on one side and the arms of Portugal on the other.

CRUSCA, an Italian term signifying *bran*, is in use amongst us to denote that celebrated academy called *della Crusca*, established at Florence for purifying and perfecting the Tuscan language. See *ACADEMY, n° 11*. The academy took its name from its office, and the end proposed by it; which is, to refine the language, and as it were to separate the bran from it. Accordingly, its device is a sieve; and its motto, *Il piu bel fior ne coglie*; that is, "It gathers the finest flour thereof." In the hall or apartment where the academy meets, M. Moneonis informs us, that every thing bears an allusion to the name and device; the seats are in form of a baker's basket; their backs like a shovel for moving of corn; the cushions of grey satin, in form of sacks or wallets; and the branches where the lights are placed resembling sacks. The vocabulary *Della Crusca* is an excellent Italian dictionary, composed by this academy.

CRUSTA LACTEA, in medicine, the same with *ACHOR*.

CRUSTACEOUS FISH, in natural history, are those covered with shells, consisting of several pieces or scales; as those of crabs, lobsters, &c.

These are usually softer than the shells of the testaceous kind, which consist of a single piece, and generally much thicker and stronger than the former; such as those of the oyster, scallop, cockle, &c.

Dr Woodward observes, in his *Natural History*, that of all the shells found in beds of all the different matters dug out of the earth, there are scarce any of the crustaceous kind: the reason he gives for it is, that these being much lighter than the rest, must have floated on the surface at the time of the deluge, when all the strata were formed; and there have corrupted and perished.

CRUTH,

Cruor
||
Crusta-
ceous.

Cruth

Crypta.

CRUTH, or **CROWTH**, a kind of musical instrument formerly in use among the common people in Wales. It is of the fidicinal kind, somewhat resembling a violin, 12 inches in length, and an inch and an half in thickness. It has six strings supported by a bridge, and is played on with a bow: the bridge differs from that of a violin, in that it is flat and not convex on the top; a circumstance from which it is to be inferred, that the strings are to be struck at the same time, so as to afford a succession of concords. The bridge is not placed at right angles with the sides of the instrument, but in an oblique direction; and, which is further to be remarked, one of the feet of the bridge goes through one of the sound-holes, which are circular, and rests on the inside of the back; the other foot, which is proportionably shorter, resting on the belly before the other sound-hole. Of the strings, the four first are conducted from the bridge down the finger-board, as in a common violin; but the fifth and sixth, which are about an inch longer than the others, leave the small end of the neck about an inch to the right. The whole six are wound up either by wooden pegs in the form of the letter T, or by iron pins, which are turned with a wrest like those of a harp or spinet. Of the tuning, it is to be remarked, that the fifth and sixth strings are the unison and octave of G; the fourth and fifth, the same of C; and the second and first, the same of D; so that the second pair of strings are a fourth, and the third a fifth, to the first. See Plate CL.

Concerning the antiquity of this instrument, there is but little written evidence to carry it further back than the time of Leland; nevertheless the opinion of its high antiquity is so strong among the inhabitants of the country where it was used, as to afford a probable ground of conjecture, that the cruth might be the prototype of the whole fidicinal species of musical instruments. Another evidence of its antiquity, but which tends also to prove that it was not peculiar to Wales, arises from a discovery lately made and communicated to the society of antiquarians, respecting the abbey-church of Melrose in Scotland, supposed to have been built about the time of Edward II. It seems that among the outside ornaments of that church there is the representation of a cruth, very little different from the description above given. The instrument is now disused, in so much that Sir John Hawkins, from whom we extract, tells us, that there is but one person in the whole principality of North Wales that can play upon it; and as he was at that time near 60 years of age, the succession of performers is probably near an end.

CRUX, or **St Croix**, one of the Caribbee islands, situated about 60 miles south east of Porto Rico, and subject to Denmark. From being a perfect desert, it has begun to flourish exceedingly, being made a free port, and receiving great encouragement from government. W. Long. 64. o. N. Lat. 17. 30.

CRYMODES, among physicians, a kind of fever attended with a shivering cold, and inflammation of the internal parts of the body.

CRYPTA, a subterraneous cell or vault, especially under a church, for the interment of particular families or persons. S. Ciampini, describing the outside of the Vatican, speaks of the *crypta* of St Andrew, St Paul,

&c. The word is formed of *κρυπτο*, *abscundo*, "I hide;" whence *κρυπτα*, *crypta*.

Vitruvius uses the word *crypta* for a part of a building, answering nearly to our cellar; Juvenal for a *cloaca*. Hence *crypto porticus*, a subterraneous place arched or vaulted, used as an under work or passage in old walls. The same is also used for the decoration at the entry of a grotto.

CRYPTA is also used by some of our ancient writers for a chapel or oratory under-ground.

CRYPTÆ, in anatomy, a name given by Ruysch to glands situated on the back of the tongue, and to glands of the intestines.

CRYPTOGAMIA, (from *κρυπτο* *occultus*, "concealed," and *γαμος*, *nuptia*, "nuptials"), the 24th class in the Linnæan system, comprehending those plants whose fructifications is concealed, either through minuteness, or within the fruit. See **BOTANY**, the *Scheme and Explanation*, Vol. III. p. 430.

CRYPTOGRAPHY, the art of writing in cipher, or with sympathetic ink. See **CIPHER** and **INK**.

CRYSTAL, a species of stones of the quartz kind, belonging to the siliceous class. It always appears, when there has been no interruption to its crystallization, in hexagonal prisms pointed at both ends. It is found of different kinds and colours. 1. Opaque or semitransparent, and white or of a milk colour. 2. Opaque and red, or of a cornelian colour, from Oran in Barbary. 3. Opaque and black, from the same place. 4. Clear. The specific gravity of these kinds of crystals is from 2650 to 2700. Professor Bergman extracted from them about six parts of argilla and one of calcareous earth per hundred weight; but Mr Gerhard found some so pure as to contain neither. 5. Clear and blackish brown, the smoky topaz, or *rauch topaz* of the Germans. It is found at Egan in Norway, and at Lovisa in Finland. These crystals are said to become clear by boiling them in tallow. 6. Clear and yellow; found in Bohemia, and sold instead of topazes. 7. Clear and violet-coloured; the amethyst, from Saxony, Bohemia, and Dannemore in Upland. The most transparent of these are called false diamonds. Bristol, Kerry stones, Alençon diamonds, &c. 8. Colourless rock crystal, properly so called, found in Bohemia, the province of Jemtland, and many other places. 9. Pyramidal crystal with one or two points. These have no prismatic shape, but either stand upon a base in cavities of quartz veins, have only a single pyramid, and are of various colours; or they lie in a clayey earth, and have both pyramids, but no prism. They are found at Blackenburg upon the Hartz, and at Morserosh in the Silverland in Transylvania.

The coloured transparent crystals derive their tinge from an exceedingly small portion of metallic calces, but lose them entirely when strongly heated. They are called *false gems*; viz. the red from Oran in Barbary, false rubies; the yellow from Saxony, false topazes; the green from Dauphiny, very rare, false emeralds or prases; the violet from Vil in Catalonia, false amethysts; the blue from Puy in Valay in France, false sapphires. There are likewise opal or rainbow crystals, the various colours of which are thrown out in zones across the surface. They make a very fine appearance, though they never shine like the oriental opal.

Crypta

Crystal.

Crystal.

M. Fourcroy makes a remarkable difference between the crystals and quartz, by affirming that the former are unalterable in the fire, in which they neither lose their hardness, transparency, nor colour, while the quartz loses the same qualities, and is reduced by it to a white and opaque earth. He classes the rock-crystals,

I. According to their form, viz. 1. Insulated hexagonal crystals ending in pyramids of six faces, which have a double refraction, or show two images of the same object when looked through. 2. Hexagonal crystals united, having one or two points. 3. Tetraedral, dodecaedral, flatted crystals; and which, though hexagonal, have nevertheless their planes irregular. 4. Crystals in large masses, from the island of Madagascar, which have a simple refraction.

II. With regard to their colour, as being either diaphanous, reddish, smoky, or blackish.

III. With regard to accidental changes, some are hollow; some contain water within one or more cavities; some are cased one within the other; some are of a round form, as the pebbles of the Rhine; some have a crust of metallic calces or of a pyrites; some are found crystallized in the inside of a cavity; while some seem to contain amianthus or asbestos; and others contain shirls. The same author reckons among crystals the oriental topaz, the hyacinth, the oriental sapphire, and the amethyst. Mr Daubenton has always looked upon this last as a quartz of a crystal.

When the rock-crystals are semitransparent or intermixed with opaque veins, they are called by the Swedish lapidaries *milk-crystals*. When they are found in the form of round pebbles, which is occasioned by their being tossed about and rubbed against one another by floods or by the sea, they are called by the English lapidaries *pebble-crystals*. They come from the Indies, Siberia, and other places,

According to Bomare, the rocky-crystals are generally formed upon or among quartz, which shows their great affinity, and are to be found in all parts of the world. The greatest quantity of them is brought from Mount Saint Gothard in Switzerland. Large pieces of these, weighing from 5 to 800 pounds, were found there at Grimselberg; another of about 1200 pounds weight was found some years ago at Fribach in the Wallais; and a piece six feet long, four wide, and equally thick, was found in the island of Madagascar, where these natural productions are of the most extraordinary size and perfection.

In the imperial collection at Vienna, there is a pyramidal crystal vase two ells in height, cut wholly out of one piece. It is usual with the largest crystals of the German mountains to be full of cracks and flaws, and to be so constructed internally as to show all the prismatic colours; but the above mentioned ones were quite free from these blemishes, and resembled columns of the purest glass, only much clearer than any glass can be made. Crystal is also found in many parts of Britain and Ireland. About Bristol it is found of an amethystine tinge. In Silesia and Bohemia in Germany it is found stained with the colours of the ruby, sapphire, emerald, and topaz; in which case jewellers take great advantage of it, selling it under the name of *accidental sapphire*.

The orders of pure crystal are three: The first is

Nº 95.

perfect columnar crystals, with double pyramids, composed of 18 planes, in an hexangular column, terminated by an hexangular pyramid at each end: the second order is that of perfect crystals, with double pyramids, without a column, composed either of 12 or of 16 planes, in two hexangular pyramids, joined closely base to base, without the intervention of any column: the third order is that of imperfect crystals, with single pyramids, composed either of 12 or 10 planes, in an hexangular or pentangular column, affixed irregularly at one end to some solid body, and terminated at the other by an hexangular or pentangular pyramid.

These are all the general forms into which crystal, when pure, is found concreted: but under these there are almost infinite varieties in the number of angles, and the length, thickness, and other accidents of the columns and pyramids.

When crystal is blended with metalline particles at the time of its formation, it assumes a variety of figures wholly different from these, constituting a fourth order, under the name of *metalline crystals*: when that metal is lead, the crystal assumes the form of a cube; when it is tin, of a quadrilateral pyramid, with a broad base; when iron, the crystal is found concreted in rhomboidal figures: these crystals are very common about mines; but the common spars, which are liable to be influenced in the same manner by the metals, and to appear in the very same form, are to be carefully distinguished from them. There is one very easy test for this purpose, which is, that all spars are subject to be dissolved by aquafortis, and effervesce violently only on its touching them: but it has no such effects on crystal.

The pebble-crystal is common enough in all parts of the world; but that which is formed of hexangular columns, affixed to a solid base at one end, and terminated by a hexangular column at the other, is infinitely more so: this is what we call *sparg* or *rock crystal*, and is the species described by most authors under the name of *crystal of the shops*, or that kept for medicinal uses.

With regard to the formation of crystals, it is certain that they must have been once in a soft state, since some are found to have water in their cavities. Professor Bergman obtained 13 regular formed crystals, by suffering the powder of quartz to remain in a vessel with fluor acid for two years. These were about the size of small peas, and were less hard than quartz. Mr Magellan informs us, that he received from Mr Achard two crystals, one of the sparry kind, and the other as hard and transparent as rock-crystal. The first he procured by means of calcareous earth, and the latter from the earth of alum, both dissolved in water impregnated with fixed air, the water filtrating very slowly through a porous bottom of baked clay. The apparatus is described by the author in the *Journal de Physique* for January 1778: but though the process was attempted by Mr Magellan, and afterwards a second time by Mr Archard himself, neither of them were able to succeed. Mr Morveau, however, in the first volume of the Dijon Memoirs for 1785, asserts that he has produced a very small artificial crystal; and gives the proper method for succeeding in the process.

In

Crystal.

In the natural way many of the more compound fossil bodies are formed chiefly either of crystal, or of spar, a body in many things resembling it. The original formation and coalescence of those bodies of which spar is the basis, we know, may have been but of yesterday, since we have evident proofs that spar is concreting to this day, and that sparry bodies are forming every moment. This is evident from the sparry stalactites in the arches of modern buildings, particularly in one so lately built as the new bridge at Westminster; the roofs of the arches of which were filled with these spars within a year after they were built. It is also demonstrable that the spars are not formed of matter exuding from the stone, since brick arches abound equally with them; and the brick vault which supports part of the grand terrace at London, was some time ago so full of them that there was not room to walk. These observations sufficiently demonstrate the growth of spar; but the vegetation of crystal remained dubious till Dr Hill showed by some experiments that *crystal*, as well as spar, is dissolved in every kind of water, even such as appears to be most pure and clear. This is also probable from an observation of Neumann's, who tells us, that he has seen leaves, stalks of plants, hay, straw, hogs bristles, &c. inclosed in sprigs of crystal. From the regular forms in which these natural crystals are found, the regular arrangement of salts into different figures takes the name of *crystallization*, and both are probably owing to the same cause*. Henckel gives us a remarkable account of the formation of crystal out of human urine. He once filled a large round glass-vessel half way up with the recent urine of a young lad, and tying a bladder over the mouth of the vessel, set it in a stove for four years together, never stirring it during that whole time. At the end of this time he found a number of small white stones growing to the inside of the glass; they were of the size of an oat-seed, of a prismatic figure, and tolerably pellucid: they stuck so fast to the sides of the glass that they could not be washed off by the shaking about of the urine; and when taken out had no saline taste, and were not soluble even in hot water.

Crystal is frequently cut; and lustres, vases, and toys, are made of it as of other beautiful stones. For this purpose it is to be chosen perfectly clear and transparent. It is to be tried by aquafortis, or by drawing it along a pane of glass. The genuine crystal will not be affected by the acid, and will cut glass almost like a diamond. When any piece of workmanship of natural crystal is become foul and dark, the following method is to be used for recovering its brightness without hurting the polish. Mix together six parts of common water and one part of brandy; boil these over a brisk fire, and let the crystal be kept in it, in a boiling state, a quarter of an hour; then take it out and rub it carefully over with a brush dipped in the same liquor; after this it is to be wiped with a napkin, and by that means its surface will be perfectly cleaned, and rendered as bright as at first, without any injury to the points of the cutting or the polish of the planes or faces, which would probably have happened had the cleaning been attempted by mere rubbing with a cloth.

Natural crystal may be reduced by calcination into
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a state proper for making glass with alkaline salts, and thus becomes a very valuable frit. The method of doing it is as follows: calcine natural crystal in a crucible; when it is red-hot, throw it into cold water. Repeat this eight times, covering the crucible that no dust or ashes may get in among the crystal. Dry this calcined mass, and reduce it to an impalpable powder.

Colouring Crystal, for the imitation of gems. See DOUBLET.

CRYSTAL is also used for a fictitious body, cast in glass houses, called *crystal-glass*; being in fact no more than glass carried, in the composition and manufacture, to a greater perfection than the common glass.

The best kind of glass-crystal is that called *Venice-crystal*, made at Moran near Venice. See GLASS.

Iceland or Iceland Crystal, a transparent fissile stone, brought from Iceland, soft as talc, clear as rock-crystal, and without colour, remarkable for its unusual refractions.

It is there found in great abundance all over the country, but is particularly plentiful in a mountain, not far from the bay of Roesford, where the finest and most pellucid pieces are found on digging. The mountain lies in 65 degrees latitude, and has its whole outside made up of it; but though this makes a very bright and glittering appearance, it is not so fine as that which lies at a little depth, and is met with on opening the surface. This is generally taken up out of the earth in masses a foot long, and its corners very frequently are terminated in these large masses, by a sort of crystals, very different in figure and qualities from the rest of the mass. The stone itself is of a parallelopiped figure; but these excrescences are either single pyramids, affixed to columns like common crystal, or double pyramids with or without columns between. The stone itself is soft; these are hard, and cut glass; the stone calcines to lime in the fire; these run into glass: in short, the stone itself is true spar, and these are true crystal. Beside these, there sometimes grows out of the end of the larger masses a pure fine asbestos. This likewise is the case sometimes in the spar found about Barege in France, and shows how nearly together the formation of bodies, wholly different from one another, may happen. The general figure of the stone is parallelopiped; or, as some express it, rhomboide; and it retains this not only while whole, but also when broken to pieces. Every fragment it naturally falls into, though ever so small, being truly of that shape. But it is remarkable, that in some places of this mountain, the same sort of matter is found in form of triangular pyramids, all which have the same property of the double refraction with the parallelopipeds of the same substance; so that the original error of supposing its qualities owing to its shape, is refuted by this, as well as by the trials made with other pellucid bodies of the same figure, which do not show this remarkable property.

The Iceland crystal is electrical, and when rubbed will draw up straws, feathers, and other light substances, in the same manner that amber does.

The vast masses of white spar which are found in the lead mines of Derbyshire, though they are not externally of the parallelopiped figure of the Iceland crystal, nor have any thing of its brightness or transparency

* See Crystallization.

Crystal. in the general lump; yet when they are broken they separate into rhomboidal fragments, and some of these are found to be tolerably pellucid; all those which are so have the property of the Iceland crystal; and being laid upon paper where a black line is drawn, they all show that line double in the same manner as the real Iceland crystal does.

Iceland crystal bears a red heat without losing its transparency; and in a very intense heat calcines without fusion: steeped a day or two in water, it loses its natural polish. It is very soft and easily scratched with the point of a pin; it will not give fire on being struck against steel; and ferments and is perfectly dissolved in aquafortis. It is found in Iceland, from whence it has its name; and in France, Germany, and many other places. In England fragments of other spars are very often mistaken for it, many of them having in some degree the same property. It has none of the distinguishing characters of crystal; and is plainly a genus of spars, called from their figure *parallelopipedia*, which, as well as some other bodies of a different genus, have the same properties. Bartholine, Huygens, and Sir Isaac Newton, have described the body at large, but have accounted it either a crystal or a talc; errors which could not have happened, had the criterions of fossils been at that time fixed; since Sir Isaac Newton has recorded its property of making an ebullition with aquafortis, which alone must prove that it is neither talc nor crystal, both those bodies being wholly unaffected by that menstruum. It is always found in form of an oblique parallelopiped, with six sides, and is found of various sizes, from a quarter of an inch to three inches or more in diameter. It is pellucid, and not much less bright than the purest crystal, and its planes are all tolerably smooth, though when nicely viewed they are found to be waved with crooked lines made by the edges of imperfect plates. What appears very singular in the structure of this body is, that all the surfaces are placed in the same manner, and consequently it will split off into thin plates, either horizontally or perpendicularly; but this is found, on a microscopic examination, to be owing to the regularity of figure, smoothness of surface, and nice joining of the several small parallelopiped concretions, of which the whole is composed, and to the same cause is probably owing its remarkable property in refraction.

The phenomena of this stone are very remarkable, were first suggested by Bartholin, and have been examined with great accuracy by M. Huygens and Sir Isaac Newton.

1. Whereas in other pellucid bodies there is only one refraction, in this there are two; so that objects viewed through it appear double.

2. Whereas in other transparent bodies, a ray falling perpendicularly on the surface, passes straight through, without suffering any refraction; and an oblique ray is always divided; in Iceland crystal, every ray, whether perpendicular or oblique, becomes divided into two, by means of the double refraction. One of these refractions is, according to the ordinary rule, the sine of incidence out of air into crystal, being to the sine of refraction as five to three; but the other is perfectly new. The like double refraction is also observed in crystal of the rock, though much less sensibly. When an incident ray is thus divided, and each moiety ar-

rives at the farther surface, that refracted in the first surface after the usual manner, is refracted entirely after the usual manner at the second; and that refracted in the unusual manner in the first is entirely refracted after the like manner in the second; so that each emerges out of the second surface parallel to the first incident ray. Again, if two pieces of this crystal be placed over each other, so that the surfaces of the one be parallel to the corresponding ones of the other; the rays refracted in the usual manner in the first surface of the first, are refracted after the usual manner in all the other surfaces; and the same uniformity appears in the rays refracted after the unusual manner; and this in any inclination of the surfaces, provided their planes of perpendicular refraction be parallel.

From these phenomena Sir Isaac Newton infers, that there is an original difference in the rays of light; by means whereof some are here constantly refracted after the usual manner; and others in the unusual manner. Were not the difference original, and did it arise from any new modifications impressed on the rays at their first refraction, it would be altered by new modifications in the three following ones; whereas, in fact, it suffers no alteration at all. Again, he hence takes occasion to suspect, that the rays of light have several sides, endued with several original properties: for it appears from the circumstances, that these are not two sorts of rays differing in their nature from each other, one constantly, in all positions, refracted in the usual, and the other in the unusual manner; the difference in the experiment mentioned being only in the position of the sides of the rays to the plane of perpendicular refraction. For one and the same ray is refracted sometimes after the usual, and sometimes after the unusual manner, according to the position of its sides to the crystal: the refraction being alike in both, when the sides of the rays are posited the same way to both, but different when different. Every ray therefore may be considered as having four sides or quarters; two of which, opposite to each other, dispose the ray to be refracted after the unusual manner; and the other two in the usual. These dispositions, being in the rays before their incidence on the second, third, and fourth surfaces, and suffering no alterations; for what appears in their passage through them must be original and connate.

Father Beccaria corrects the observations of Huygens and Newton concerning the refraction of rock or mountain crystal. The double refraction of the latter happens when a ray passes through two sides that are inclined to each other, and consequently issues coloured; whereas that of the Iceland crystal is made by the passage of a ray through two parallel sides, and therefore it issues colourless. He suggests, that there may be other substances in which there is a manifold refraction. Gravesande had a prism of Brasil pebble, which had a double refraction at each angle, but of a different kind from one another. Mr B. Martin prepared several prisms of Iceland crystal, which exhibited not only a double but a multiple refraction. A single prism produced a six-fold refraction; and by combining several prisms, a number of refractions was obtained equal to the product of those of the single prisms; *i. e.* a prism which afforded two images applied to one of six, produced a prism of twelve images, &c. He farther

Crystalline ther observes, with respect to Iceland crystal, that tho' the sides of its plane of perpendicular refraction be parallel to one another, a beam of light transmitted thro' them will not be colourless; in which property it differs from all other known substances.

CRYSTALLINE, in general, something composed of, or resembling, crystal. See CRYSTAL.

CRYSTALLINE *Heavens*, in ancient astronomy, two spheres, imagined between the primum mobile and the firmament, in the Ptolemaic system, which supposes the heavens solid, and only susceptible of a single motion. See ASTRONOMY, n° 247.

CRYSTALLINE *Humour*. See ANATOMY, p. 767.

CRYSTALLINÆ, or CRYSTALLINES, in medicine, are pustules filled with water, and so called on account of their transparency. They are one of the worst symptoms attendant on a gonorrhœa. They are lodged on the prepuce, without pain; and though caused by coition, have nothing of infection attending them. The cause is supposed to be a contusion of the lymphatic vessels in the part affected. Dr Cockburn, who hath described this case, recommends for the cure a mixture of three parts of lime-water and two of rectified spirit of wine, to be used warm, as a lotion, three times a-day.

CRYSTALLIZATION, in general, signifies the natural formation of any substance into a regular figure, resembling that of crystal. Hence the phrases of crystallized ores, crystallized salts, &c. and even the basaltic rocks are now generally reckoned to be effects of this operation: (See BASALTES and VOLCANO). The term, however, is most commonly applied to bodies of the saline kind, and their separation in regular figures from the water, or other fluid in which they are dissolved, is called their *crystallization*.

* See *Chemistry-In-dex*. The word *crystallization* is never applied to the freezing of water, or to the consolidation of metals after they have been melted; though it might certainly be applied with as much justice to these substances as to any others; for all of them concrete into a certain regular form, from which they never deviate, unless

Similarity between congelation and crystallization. disturbed. When water freezes slowly, it always forms regular crystals of ice, which are constantly of the same form. They are long, needle-like masses, flattened on one side, and joined together in such a manner, that the smaller are inserted into the sides of the greater; and thus these compound crystals have the appearance of feathers, or branches of trees with leaves. The most remarkable circumstance attending this crystallization is, that the angle formed by the insertion of the smaller pieces into the larger is either 60 or 120 degrees. The figures assumed by metals of different kinds have not been so exactly investigated, except in the regulus of antimony, which is observed always to take a stellated form. Experience also shows, that all kinds of earths, or other mineral matters, are capable of assuming a crystalline form, and may easily be made to do so by taking away part of the water which dissolves them.

Different salts assume different figures in crystallization, and are thus most easily distinguished from one another. The methods of reducing them into this form, for sale, are mentioned under the article CHEMISTRY, n° 573. But besides the large crystals produced in this way, each salt is capable of assuming a

very different appearance of the crystalline kind, when only a single drop of the saline solution is made use of, and the crystallization viewed through a microscope. For our knowledge of this species of crystallization we are indebted to Mr Henry Baker, who was presented with a gold medal for the discovery, in the year 1744. These microscopical crystals he distinguishes from the large ones by the name of *configurations*; but this term seems inaccurate, and the distinction may well enough be preserved by calling the large ones the *common*, and the small ones the *microscopical*, crystals of the salt. His method of making these observations he gives in the following words:

"I dissolve the subject, to be examined, in no larger a quantity of rain or river water than I am certain it is sufficient to saturate. If it is a body easily dissolvable, I make use of cold water; otherwise I make the water warm, hot, or even boiling, according as I find it necessary. After it is perfectly dissolved, I let it rest for some hours, till, if overcharged, the redundant saline particles may be precipitated and settle to the bottom, or shoot into crystals; by which means I am most likely to have a solution of the same strength at one time as at another; that is, a solution fully charged with as much as it can hold up, and no more; and by these precautions the configurations appear alike, how often soever tried: whereas, if the water be less saturated, the proportions at different times will be subject to more uncertainty; and if it be examined before such separation and precipitation of the redundant salts, little more will be seen than a confused mass of crystals.

"The solution being thus prepared, I take up a drop of it with a goose quill cut in fashion of a scoop, and place it on a flat slip of glass of about three quarters of an inch in width, and between three and four inches long, spreading it on the glass with the quill, in either a round or an oval figure, till it appears a quarter of an inch, or more, in diameter, and so shallow as to rise very little above the surface of the glass. When it is so disposed, I hold it as level as I can over the clear part of a fire that is not too fierce, or over the flame of a candle, at a distance proportionable to the heat it requires (which experience only can direct), and watch it very carefully till I discover the saline particles beginning to gather and look white, or of some other colour, at the extremities of the edges. Then (having adjusted the microscope before-hand for its reception, armed with the fourth glass, which is the fittest for most of those experiments), I place it under my eye, and bring it exactly to the focus of the magnifier; and, after running over the whole drop, I fix my attention on that side where I observe any increase or pushing forwards of crystalline matter from the circumference towards the centre.

"This motion is extremely slow at the beginning, unless the drop has been overheated, but quickens as the water evaporates; and, in many kinds, towards the conclusion, produces configurations with a swiftness inconceivable, composed of an infinity of parts, which are adjusted to each other with an elegance, regularity, and order, beyond what the exactest pencil in the world, guided by the ruler and compasses, can ever equal, or the most luxuriant imagination fancy.

Crystallization.

Microscopical crystals discovered by Mr Baker.

His method of procuring them.

Crystallization.

"When this action once begins, the eye cannot be taken off, even for a moment, without losing something worth observation: for the figures alter every instant till the whole process is over; and, in many sorts, after all seems at an end, new forms arise, different entirely from any that appeared before, and which probably are owing to some small quantity of salt of another kind, which the other separates from, and leaves to act after itself has done: and in some subjects, three or four different sorts are observable, few or none of them being simple and homogeneous.

"When the configurations are fully formed, and all the water evaporated, most kinds of them are soon destroyed again by the moisture or action of the air upon them; their points and angles lose their sharpness, become uneven and defaced, and moulder, as it were, away. But some few are permanent, and being inclosed between glasses, may be preserved months, or even years, entertaining objects for the microscope.

"It happens oftentimes that a drop of saline solution can hardly be spread on the slip of glass, by reason of the glass's smoothness, but breaks into little globules, as it would do if the surface were greasy: this was very troublesome, till I found a way of preventing it, by rubbing the broken drop with my finger over the glass, so as to leave the surface smeared with it; on which smeared place, when dry, another drop of the solution may be spread very easily in what form one pleases.

"It likewise sometimes happens, that when a heated drop is placed properly enough for examination, the observer finds he can distinguish nothing: which is owing to saline steams that, rising from the drop, cover and obscure the object-glass, and therefore must immediately be wiped away with a soft cloth or leather.

"In all examinations by the microscope of saline solutions, even though made in the day-time, I always employ the light of a candle, and advise every observer to do so likewise; for the configurations being exceedingly transparent, are rendered much more distinguishable by the brown light a candle affords, than by the more white and transparent day-light; and besides, either by moving the candle or turning the microscope, such light may be varied or directed just as the object requires."

4
Description of the microscopical crystals of various salts.

In this manner were produced the beautiful crystallizations represented Plate CLII. They are vastly different from such crystals of the same salts as are obtained by the common processes; but Mr Baker assures us they are no less constant and invariable than they, and that he has repeated the experiments a great number of times with the same success.

Fig. 1. shows the microscopical crystals of *nitre* or *saltpetre*. These shoot from the edges, with very little heat, into flattish figures of various lengths, exceedingly transparent, and with straight and parallel sides. They are shown in their different degrees of progression at the letters *a, b, c, d, e*; where *a* represents how they first begin. After numbers of these are formed, they will often dissolve under the eye, and disappear entirely; but if one waits a little, new shoots will push out, and the process go on afresh. These first figures sometimes enlarge only without altering

their shapes, and sometimes form in such sort as the drop represents; but if the heat has been too great, they shoot hastily into ramifications very numerous and beautiful, but very difficult to be drawn; and which Mr Baker therefore did not attempt. There seems all the while a violent agitation in the fluid, and most commonly, towards the conclusion, a few octaedra (composed of eight triangular planes, or two quadrangular pyramids, joined base to base) make their appearance.

2. *Blue vitriol*, produces crystals round the edges, very short at the beginning, but increasing gradually, as represented at the figures 1, 2, 3, which denote their difference of form, and the progress of their growth. These crystalline shoots are solid, regular, transparent, and reflect the light very beautifully from their polished sides and angles. As the watery part evaporates, numbers of long slender bodies like hairs are seen here and there, some lying side by side, or crossing each other as at 4, others forming star-like figures with many radiations (5, 5). This salt shoots but slowly, and therefore requires patience. At last the true crystals begin to appear commonly in the middle of the drop, and are very prettily branched, as at 6.

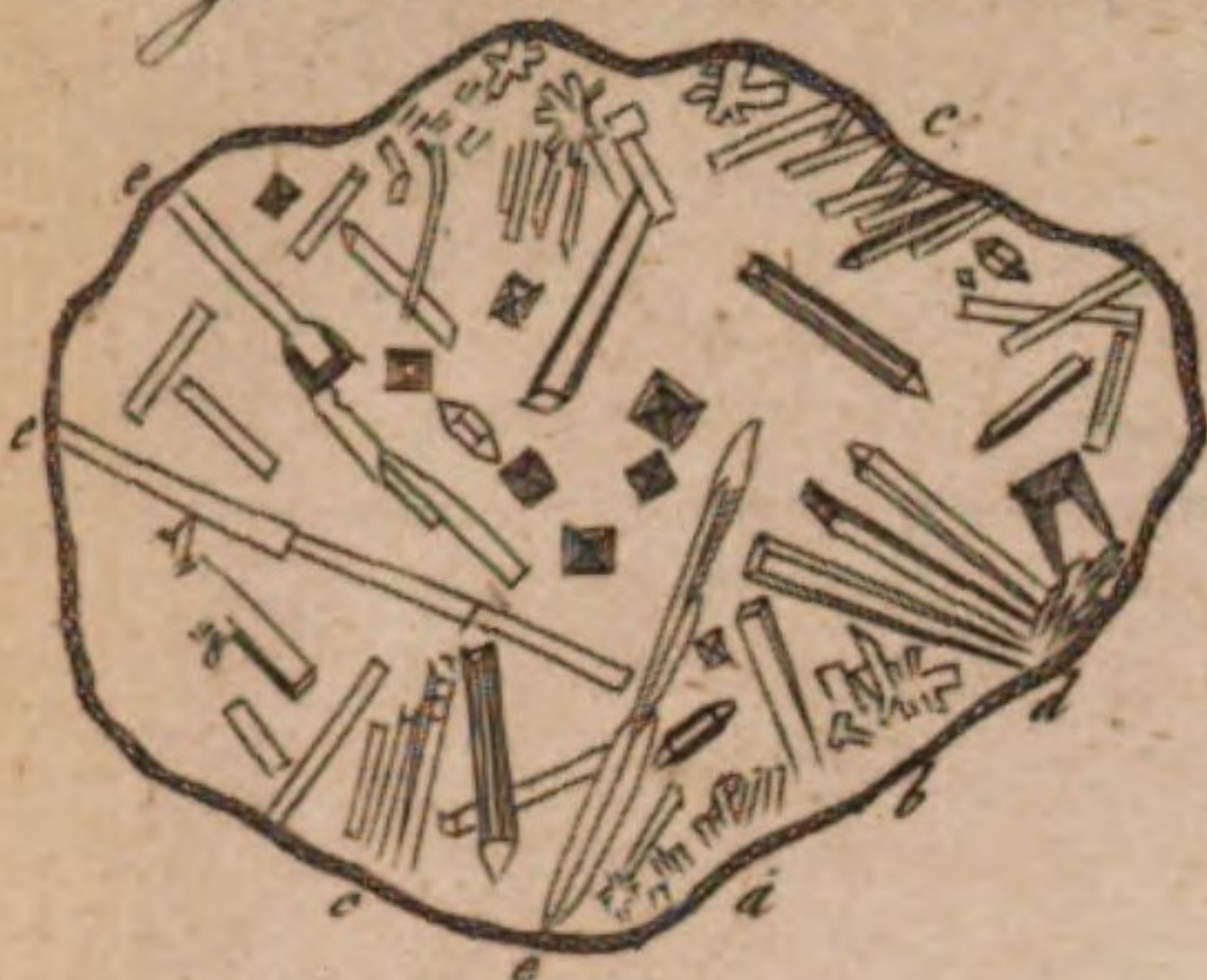
3. *Distilled verdigrease*, dissolved as above directed, and immediately applied to the microscope, shows abundance of the regular figures, 1, 2, 3, 4, 5, 6, 7: but if the solution is suffered to stand for a few hours, and a drop of it is then heated over the fire on a slip of glass, till it begins to concrete about the sides, and then examined, sharp-pointed, solid, figures, bisected by a line cut through the middle, from which they are cut away towards the edges, begin to appear, and shooting forwards (1, 1, 1). These figures are often striated very prettily from the middle line to the edges obliquely (2, 2); and frequently they arise in clusters; and shooting from a centre (3, 3). These figures are a long time in growing; and whilst they are doing so, regular crystals appear forming in several parts of the drop, of the most lovely emerald colour, and reflecting the light from their sides and angles, which are most exactly disposed, and finely polished. No crystals are formed in the middle till the water is nearly evaporated; and then they begin to form hastily, for which reason they must be carefully attended. Their common figure resembles two long // crossing each other in an angle of about 60°, and shooting branches every way: each of which again protrudes other branches from one, and sometimes from both, its sides; making together an appearance like four leaves of fern conjoined by their stalks (5, 5). Separate clusters of the same sharp pointed figures, as those at the edges of the drop, are also formed in the middle of it (6). Sometimes also they put on another form, like the leaves of dandelion (7). Very beautiful figures are likewise produced by a kind of combination of sharp points and branches (8, 8). All these crystals are of a most beautiful green colour, but deeper or lighter, according to the time of their production. The deepest are constantly produced first, and the paler ones afterwards. Towards the end of the process some circular figures are formed, extremely thin, and so slightly tinged, with green lines radiating from a centre, as to be almost colourless (9, 9). When all seems

Crystallization.

CRYSTALS of SALTS.

Plate CLII.

Fig. 1. Nitre or Salt Petre.



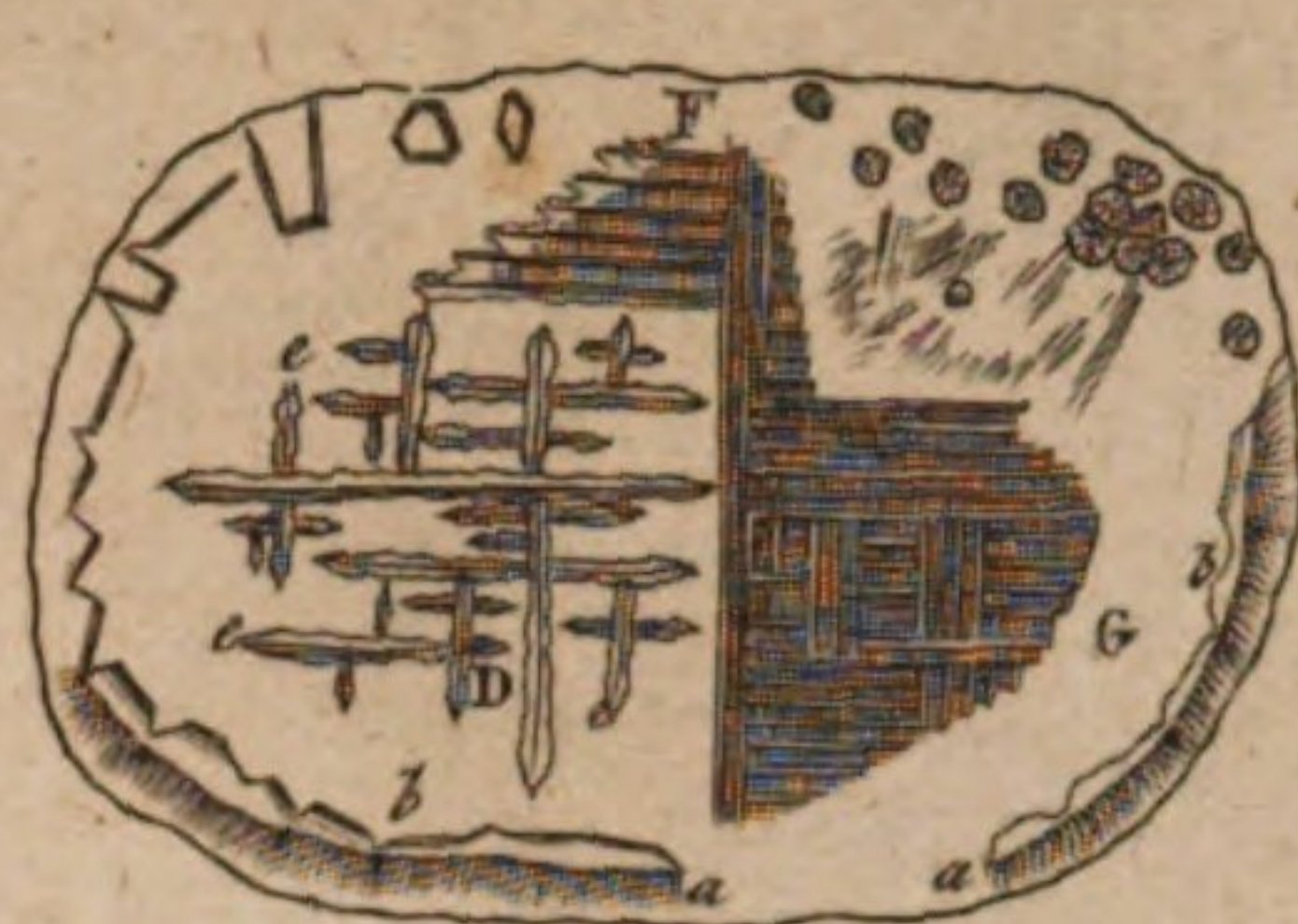
2. Blue Vitriol.



3. Verdigrise distilled.



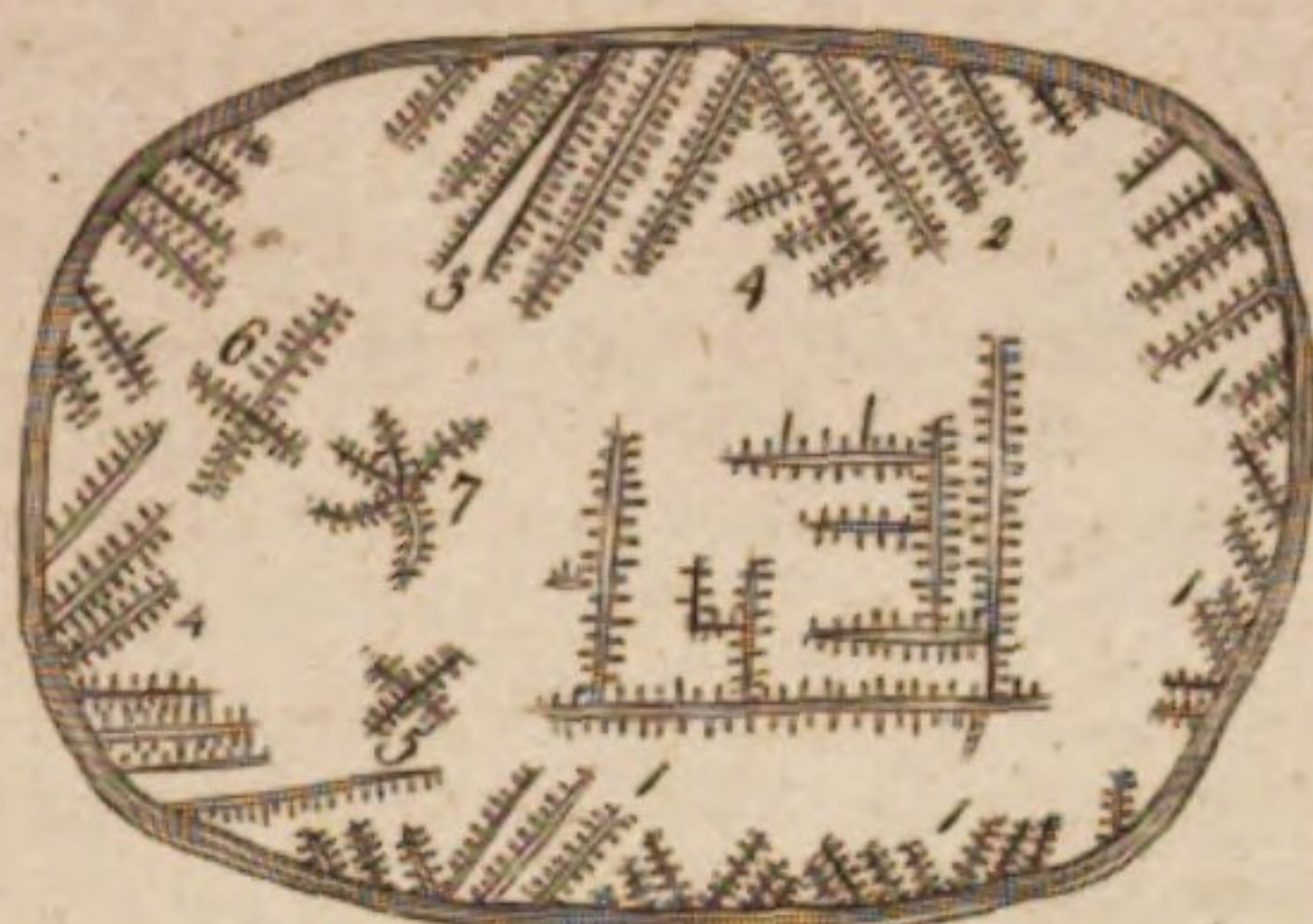
4. Alum.



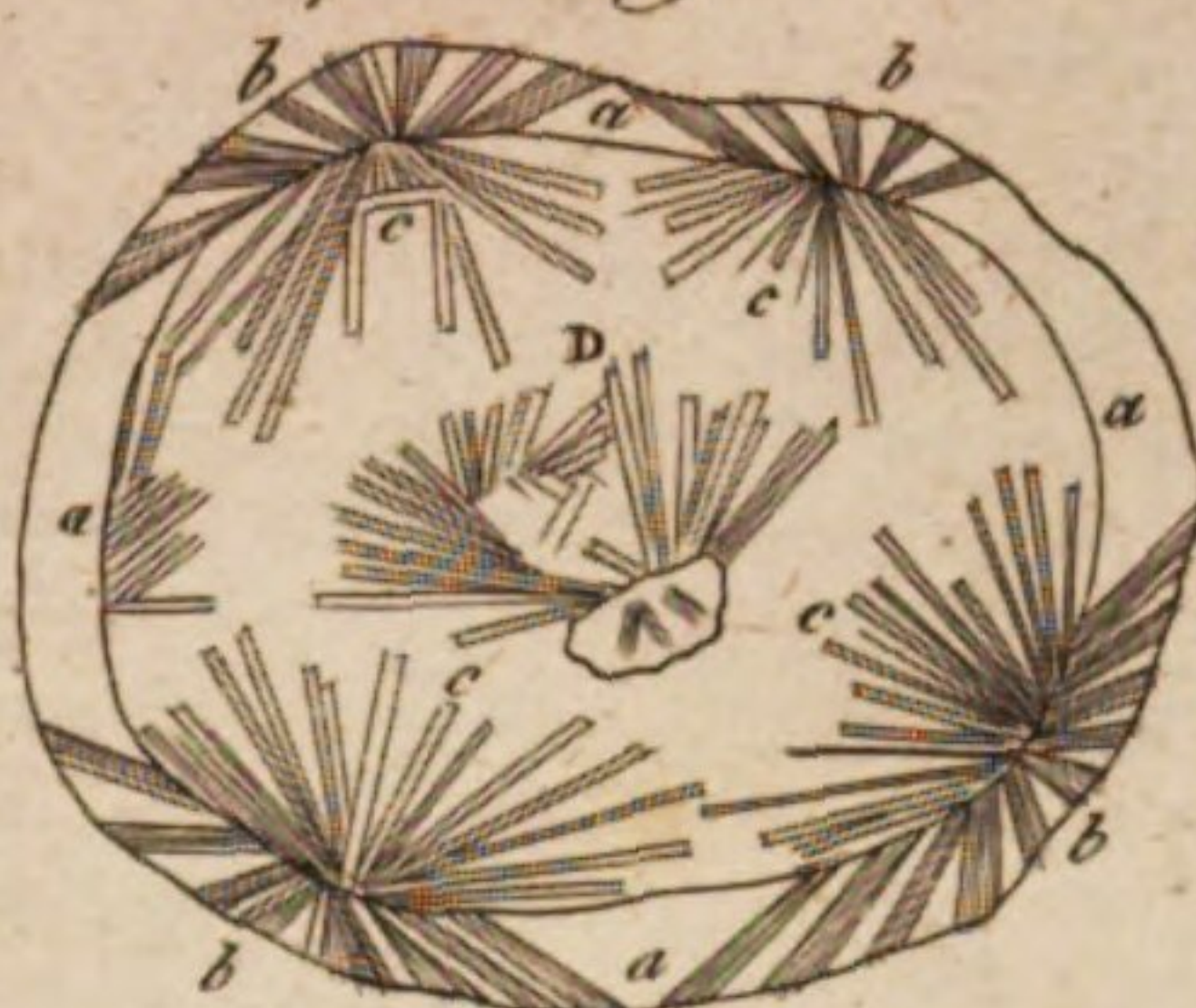
5. Borax.



6. Salt Armoniac.



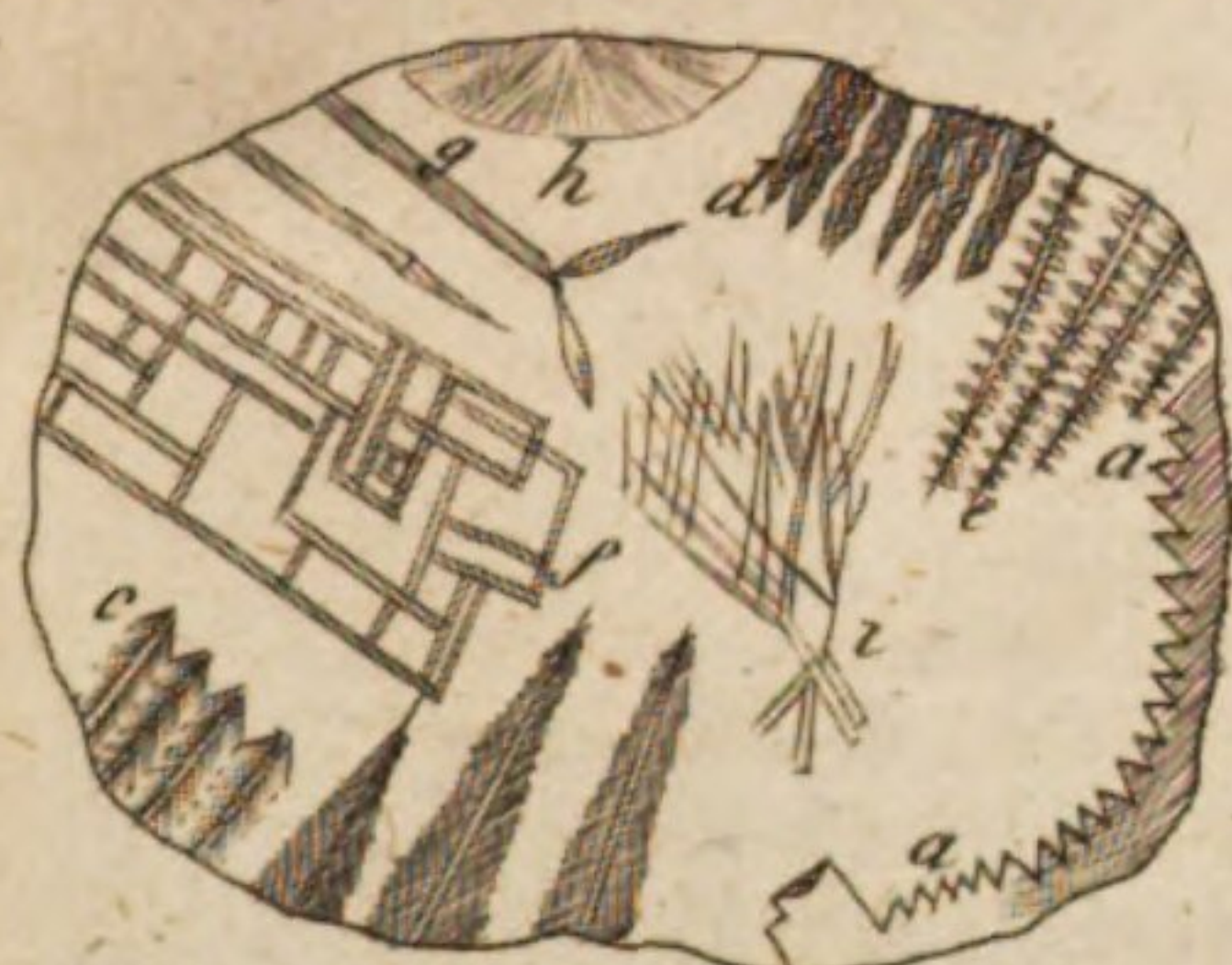
7. Salt of Lead.



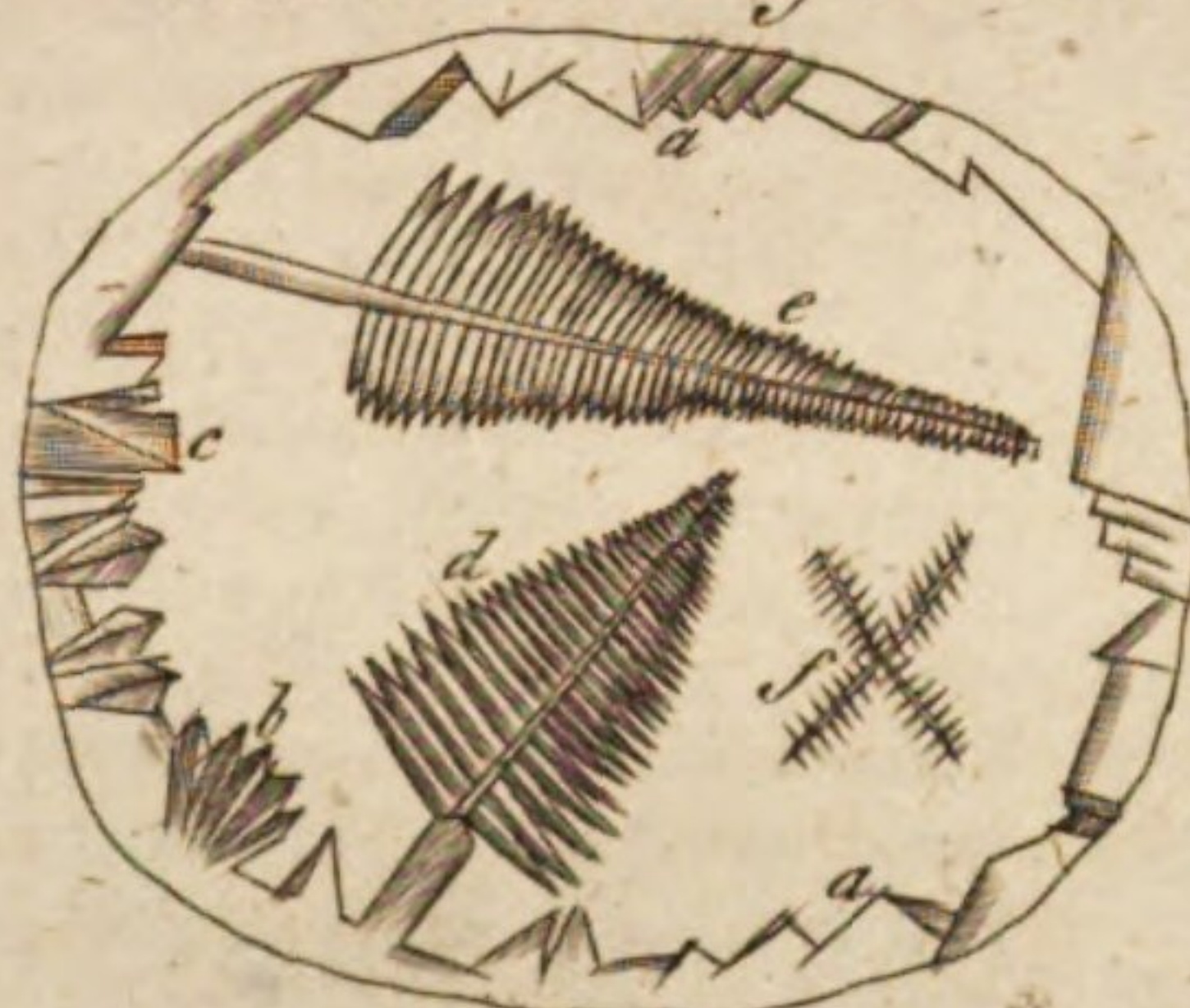
8. Salt of Tin.



9. Epsom Salt.



10. Scarborough Salt.



11. Glaubers Salts.



12. Salt of Jesuits Bark.



13. Salt of Liquorice.



14. Salt of Wormwood.



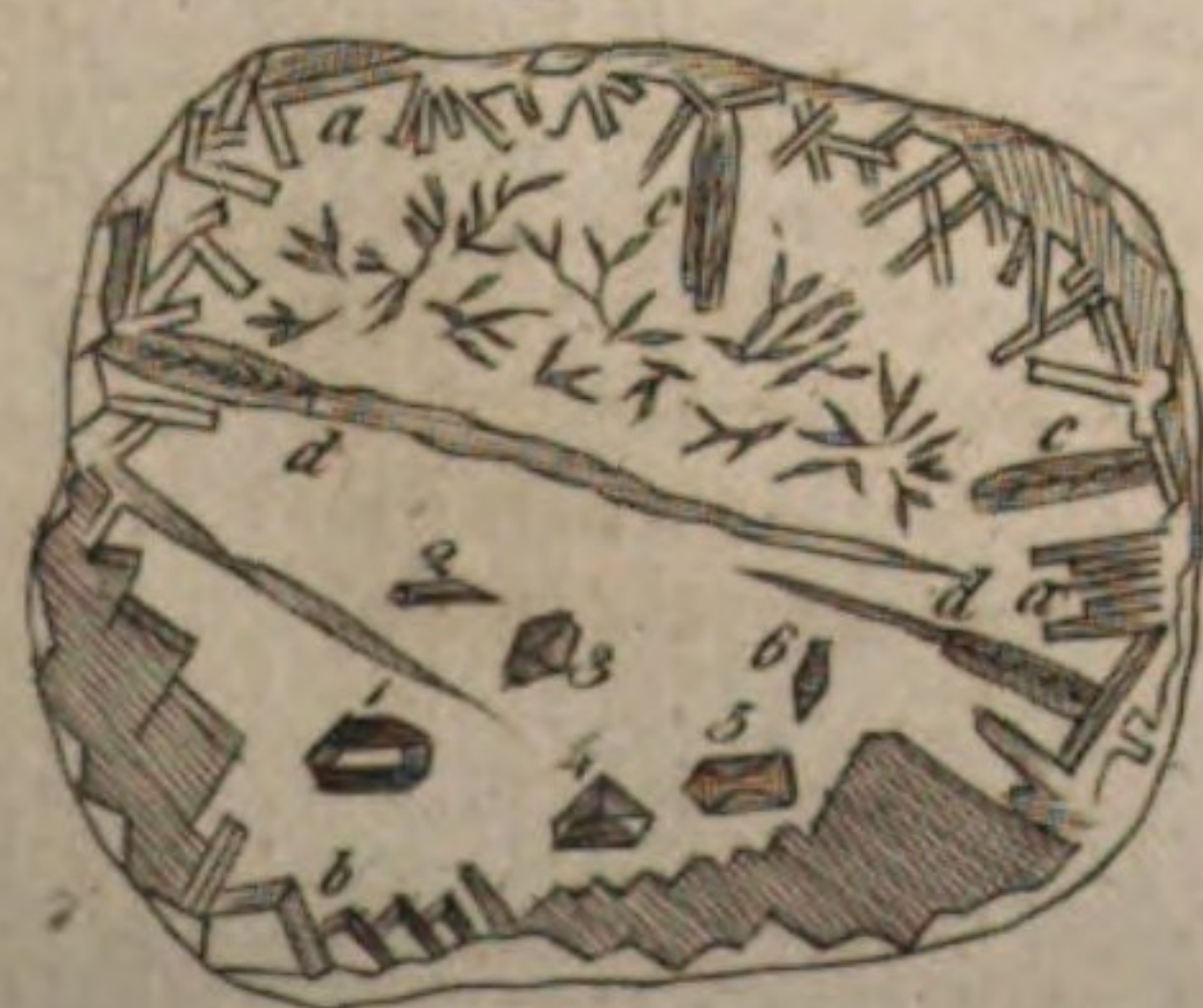
15. Salt of Tobacco.



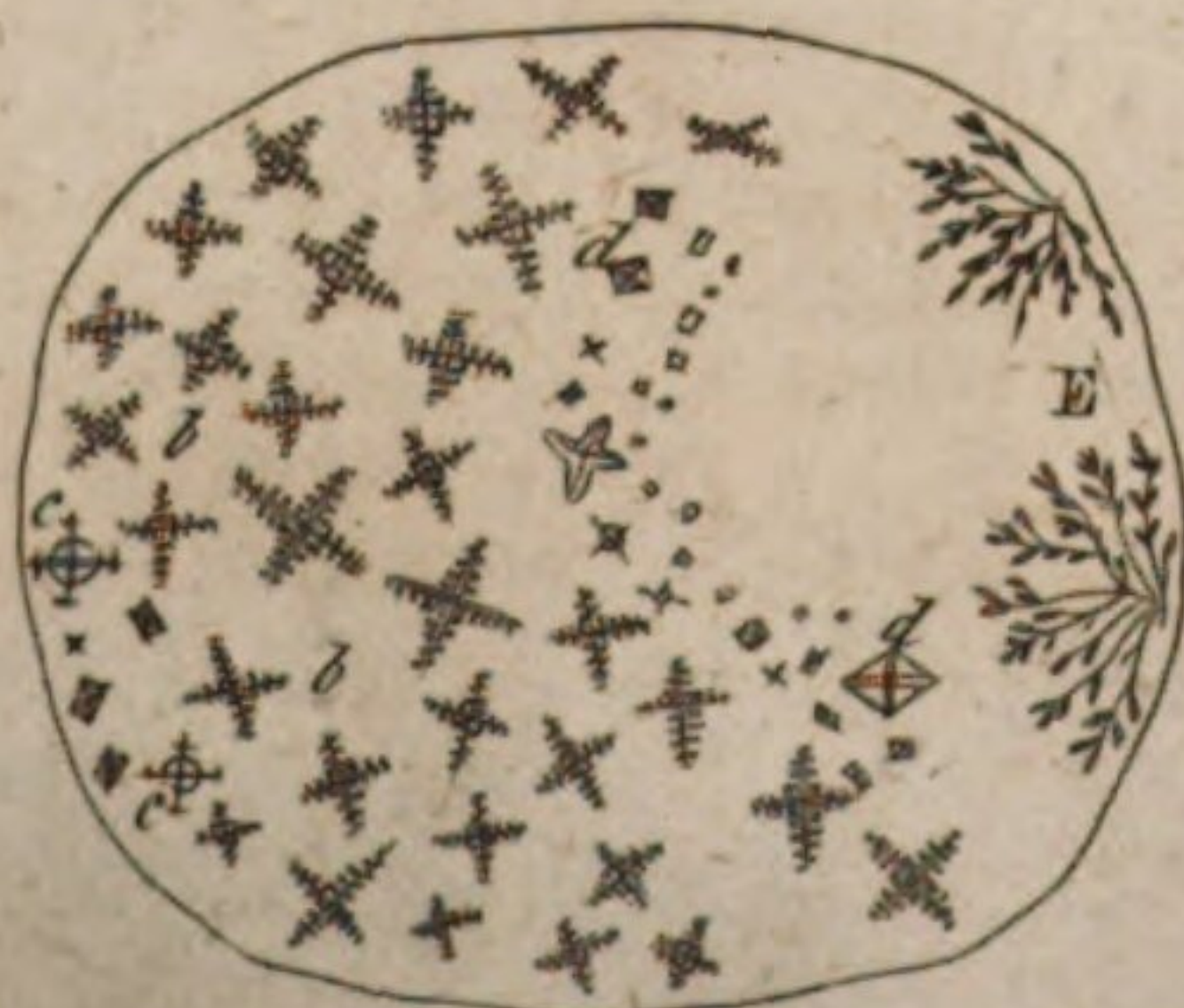
16. Salt of Hartshorn.



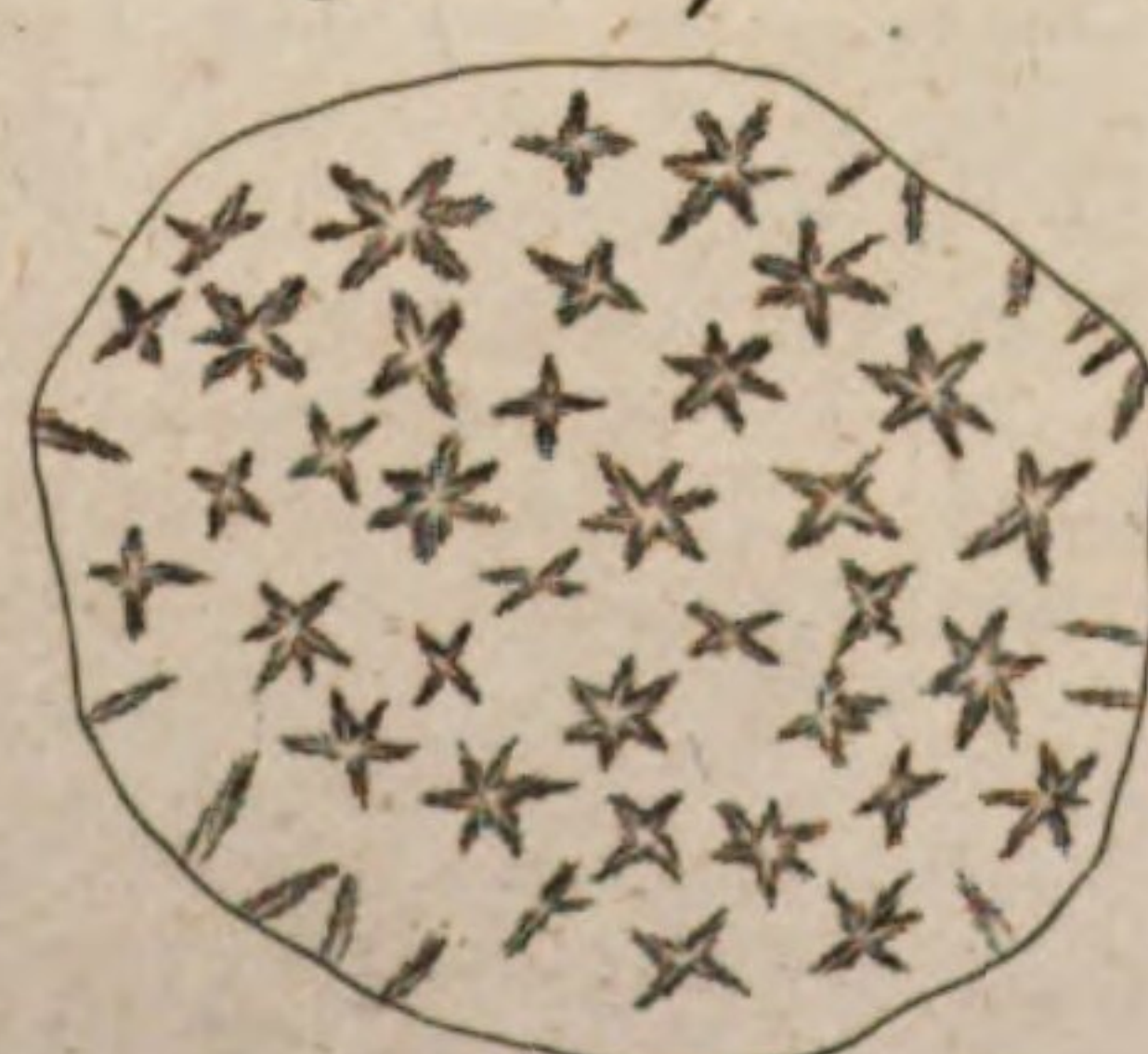
17. Salt of Urine.



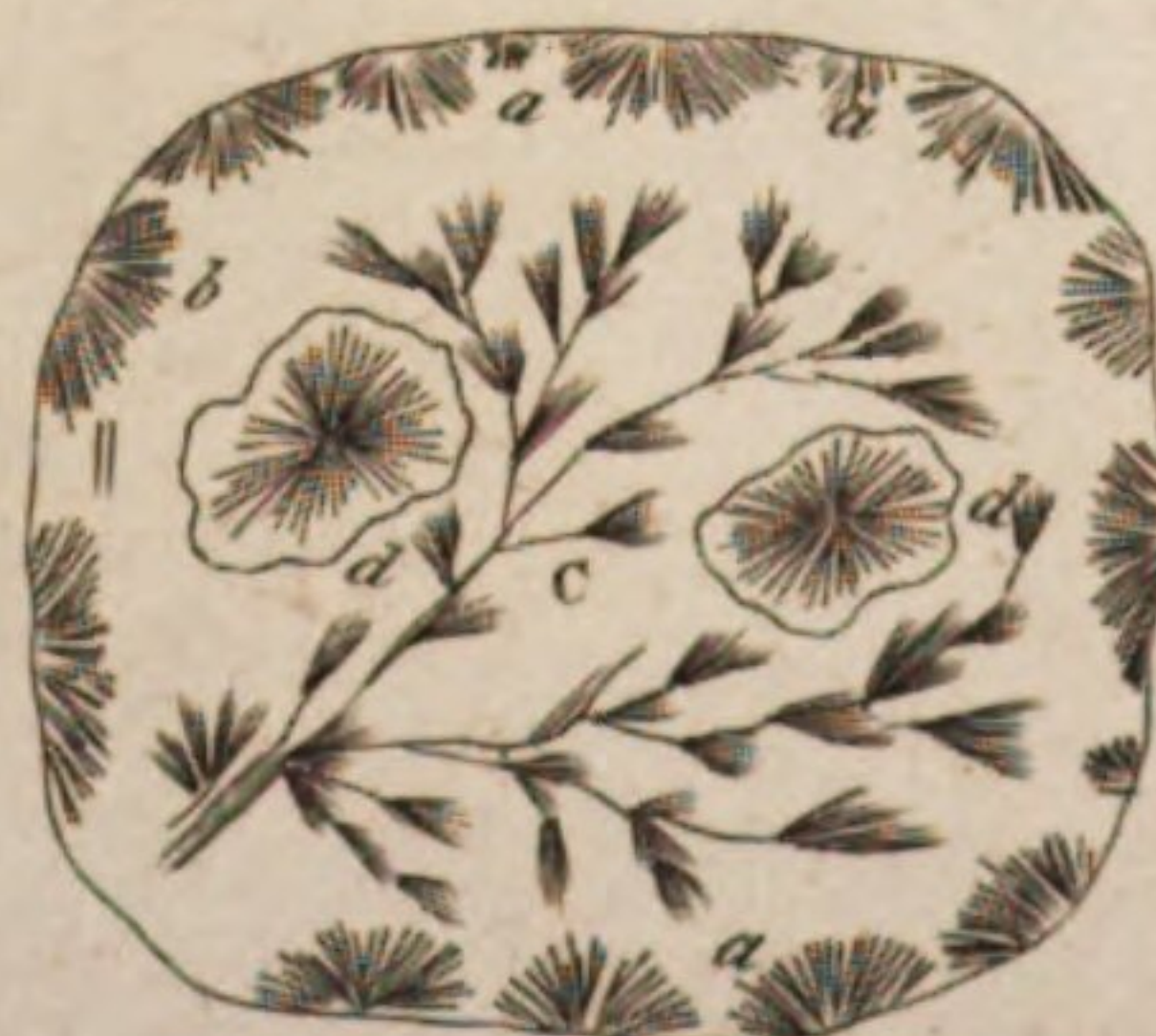
18. Rheum.



19. Camphire.



20. Manna.



A. Bell Pin. Wal. Sculptor fecit

Crystallization

seems in a manner over, bundles of hair like bodies appear frequently scattered here and there throughout the drop, like those of blue vitriol already described.

4. *Alum.* The microscopical crystals of this salt prove more or less perfect according to the strength of the solution and the degree of heat employed in making the experiment. The solution of alum, however saturated with the salt, will not be found overstrong after standing some days; for in that time many crystals will have formed in it. This separation will often leave the remainder too weak for the purpose; but by holding the vial over, or near the fire, the crystals will again dissolve. After it has stood about half an hour, it may then be used. The drop put on the glass, and properly heated, exhibits commonly at first a dark cloud which appears in motion somewhere near the edge, and runs pretty swiftly both to the right and left until it is either stopped by the intervention of regular crystals, or else it proceeds both ways at once, till having surrounded the whole drop, the two ends rush together, and join into one (*a, a*). This cloudy part, which seems to be violently agitated while it is running round, appears on a strict examination to consist of salts, shot into long and very slender lines, much finer than the smallest hair, crossing each other at right angles. As they go along, rows of solid crystals are produced from their internal edges. These are composed of many oblique plain sides (*b, b*), and which have all a tendency towards the figures of the regular crystals to be described presently. But it frequently happens, that, in some parts of the drop, many minute and circular figures are seen, rising at some little distances from the edge, which enlarging themselves continually, appear at last of a star-like form (*c, c*). The crystals in the middle seldom appear till the fluid seems almost wholly evaporated; when, on a sudden, many straight lines appear pushing forwards, whose sides or edges are jagged, and from which other similar straight and jagged lines shoot out at right angles with the first. These again have other small ones of the same kind shooting out likewise from themselves, and compose altogether a most beautiful and elegant configuration (*D*). Each of these lines increasing in breadth towards its end, appears somewhat club-headed (*e, e, e*). Sometimes, instead of sending branches from their sides, many of these lines rise parallel to each other, resembling a kind of palisade, and having numberless minute transverse lines running between them (*F*). But the most wonderful part of all, though not producible without an exact degree of heat and right management, is the dark ground work (*G*). It consists of an infinity of parallel lines having others crossing them at right angles, and producing a variety scarce conceivable from lines disposed in no other manner: the direction of the lines (which are exquisitely straight and delicate) being so frequently and differently changed, that one would think it the result of long study and contrivance. During the time this ground work is framing, certain lucid points present themselves to view most commonly on one side. These grow continually larger, with radiations from a centre, and become star-like figures as before mentioned. Some of them send out long tails, which give them the appearance of comets: and at the end of all, a dark lineation in various directions darts frequently through,

and occupies all or most of the spaces between them, making thereby no ill representation, when viewed by candle light, of a dark sky, illuminated with stars and comets. The regular crystals are often formed in the same drop with the others (*f*).

5. *Borax.* If a drop of solution of borax is held too long over the fire, it hardens on the slip of glass in such a manner that no crystals can appear. The best method is to give it a brisk heat for about a second, and then applying it to the microscope, the crystals will quickly form themselves as represented in the figure.

6. *Sal ammoniac* begins with shooting from the edges great numbers of sharp, but thick and broad, spiculæ; from whose sides are protruded, as they rise, many others of the same shape, but very short; parallel to each other, but perpendicular to their main stem (*1*). These spiculæ arrange themselves in all directions; but for the most part obliquely to the plane from whence they rise, and many are frequently seen parallel to one another (*1, 1*). As they continue to push forwards, which they do without increasing much in breadth, some shoot from them the small spiculæ only (*2*); others divide in a singular manner by the splitting of the stem (*3*); and others branch out into smaller ramifications (*4*). Before the middle of the drop begins to shoot, several exceedingly minute bodies may be discerned at the bottom of the fluid. These in a little while rise to the top, and soon distinguish their shape as that (*5*). Their growth is very quick, and for some time pretty equal; but at last some branch gets the better of the rest, and forms the figure (*6*). The other branches enlarge but little after this, all the attraction seeming to be lodged in that one that first began to lengthen; and from this, more branches being protruded, and they again protruding others, the whole appears as at (*8*). It is not uncommon to see in the middle of the drop some crystals, where, instead of the straight stems above described, there is formed a kind of zig-zag, with speculæ like those in the other figures (*7*).

7. *Salt of Lead, or saccharum saturni.* A little of this salt dissolved in hot water, which it immediately renders milky, after standing a quarter of an hour to subside, is in a fit condition for an examination by the microscope. A drop of it then applied on a slip of glass, and held over the fire to put the particles in action, will be seen forming round the edge a pretty even and regular border of a clear and transparent film or glewy substance (*aaaa*); which if too sudden and violent a heat be given, runs over the whole area of the drop, and hardens so on the glass as not to be got off without great difficulty. But if a moderate warmth be made use of, which likewise must not be too long continued, this border proceeds only a little way into the drop, with a kind of radiated figure composed of fine lines, or rather bundles of lines, beginning from the centres in the interior edge of the border, and spreading out at nearly equal distances from each other every way, towards the exterior (*bbbb*). From the same centres are produced afterwards a radiation inwards, composed of parallelograms of different lengths and breadths; from one, and sometimes both the angles of these, are frequently seen shootings so exceedingly slender, that they are perhaps

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perhaps the best possible representations of a mathematical line. The extremities of the parallelograms are generally cast off at right angles; but they are sometimes also seen oblique (*cccc*). Centres with the like radii issuing from them, and some of the glutinous matter for their root, are sometimes formed in the drop, entirely detached from the edges; and in these it is very frequent to find a kind of secondary radii proceeding from some of the primary ones; and others from them again to a great number of gradations, forming thereby a very pretty figure (*D*).

8. *Salt of Tin*, produces at the edges of the drop a number of Octaedra, partly transparent, standing on long necks, at small distances from each other, with angular shoots between them (*aa*). At the same time solid and regular opaque cubes will be seen forming themselves in other parts of the drop (*bb*). In the middle of the same drop, and in several other parts of it, very different figures will also be formed; particularly great numbers of flat, thin, transparent, hexangular bodies (*ccc*); some among which are thicker (*e*), and a few appear more solid, and with six sloping sides rising to a point, as if cut and polished (*d*). The figure (*f*) is composed of two high pyramids united at their base. Some in this kind of form are found truncated at one of their ends, and others at both. Several of the hexagonal bodies may be observed with sloping sides, forming a smooth, triangular, rising plane, whose angles point to three intermediate sides of the hexagon (*g*).

9. *Epsom Salt*, begins to shoot from the edge in jagged figures (*a*). From other parts differently figured crystals extend themselves towards the middle, some of which have fine lines proceeding from both sides of a main stem, in an oblique direction; those on one side shooting upwards in an angle of about 60° , and those on the other downwards in the same obliquity (*c, f*). Others produce jags from their sides nearly perpendicular to the main stem, thereby forming figures that resemble some species of the polipody (*e*); but in others the jags are shorter (*d*). Now and then one of the main stems continues shooting to a considerable length, without any branchings from the sides; but at last sends out two branches from its extremity (*g*). Sometimes a figure is produced having many fine and minute lines radiating from a centre (*b*). The last shootings in the middle of the drop (*b*) are not unlike the frame-work for the flooring or roofing of a house, but with the angles oblique: and sometimes a form of another kind presents itself (*i*).

10. *Scarborough Salt*, begins to shoot from the edges: first of all in portions of quadrilateral figures, much resembling those of common salt; but two of their angles instead of 90° , are about 100° . They shoot in great numbers round the borders of the drop, having their sides as nearly parallel to one another as the figure of the drop will allow: some proceed but a little way, others farther, before they renew the shoot (*aa*). In some places they appear more pointed and longer (*b*); and sometimes, instead of the diagonal, one of the sides is seen towards the edge, and the other shooting into the middle (*c*). The middle crystals (*def*) seem to be of the vitriolic kind.

11. *Glauber's Salt*, produces ramifications from the side of the drop, like the growth of minute plants, but

extremely transparent and elegant (*c*). Some of them, however, begin to shoot from a centre at some distance from the edge, and protrude branches from that centre in a contrary direction (*b*). Sometimes they shoot from one, and sometimes from more sides of the central point in different varieties (*d*). Other figures are produced from different parts of the edge of the drop (*a, f, e*); but the most remarkable and beautiful crystallization forms last of all near the middle of the drop. It is composed of a number of lines proceeding from one another at right angles with transparent spaces and divisions running between them, appearing altogether like streets, alleys, and squares, (*gg*). When this crystallization begins, it forms with great rapidity, affording the observer a very agreeable entertainment: but its beauty is of very short duration: in a few moments it dissolves and vanishes like melted ice, which renders the drawing of it very difficult.

12. *Salt of Jesuits bark*. The few shootings which this salt produces at the edge of the drop are of no regular figure (*a*). The whole area becomes quickly filled with great numbers of rhombi, of different sizes, extremely thin and transparent (*b*). Some of these enlarge greatly and acquire a considerable thickness, forming themselves into solids of many sides (*c c*). Near the conclusion some crystals of sea-salt are formed (*dd*), and likewise a few odd triangular figures (*e*).

13. *Salt of Liquorice*, begins shooting from the edge with a sort of rhombic spiculæ (*a*). Some four-branched figures like those of vitriol commonly appear, but moulder away before their ramifications are completed, leaving only their stamina behind (*bb*). The middle of the drop is usually overspread with great numbers of parallelograms, some exceedingly transparent, being mere planes; having sometimes one, sometimes more, of the angles canted in such a manner as to produce pentagonal, hexagonal, and other figures. Others have much thickness, and form parallelopipeds or prisms (*c*). Some of the plane figures now and then protrude an irregular kind of shooting which appears very pretty (*d*).

14. *Salt of Wormwood*. The first shootings of this salt from the edges of the drop appear of a considerable thickness in proportion to their length: their sides are deeply and sharply jagged or indented, being made up of many somewhat obtuse angles, and their ends pointed with angles of the same kind (*a*). But other shoots frequently branch out from these original ones, and they again send forth others, making altogether a very pretty appearance (*bb*). The crystals of this salt are very different from each other, consisting of squares, rhombi, parallelograms, &c. (*c*).

15. *Salt of Tobacco*. If a moderate degree of heat is given to a solution of this salt, its first shootings will be from the edges of the drop, in slender tapering figures, ending with very sharp points, but at considerable distances from one another. Along with these are formed other crystals, nearly of the same kind, but entirely detached, and farther within the drop, having the thicker ends towards the centre of the drop, and the sharp points turned towards its edge (*a*). When a little more heat has been given, other spiculæ are produced from the edge, whose ends spread on either side, and then terminate in a point and

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and which have all along their sides triangular pointed crystals, placed alternately so as to represent a zigzag, with a line drawn through its middle (*b*). The regular crystals are produced in the middle of the drop, and are either hexagons or rhombi (*c*). When the moisture is nearly exhaled, there are sometimes seen to shoot from, or rather under the spiculæ, upon the plane of the glass, a representation of leaves very small at their first appearance, but gradually increasing (*d*). A violent agitation may be discovered in the fluid by the first magnifier during the whole process; but especially at the beginning, and extremely minute crystals rising from the bottom.

16. *Salt of Hartshorn*. On the application of a very small degree of heat, salt of hartshorn shoots near the edges of the drop into solid figures somewhat resembling razors or lancets, where the blade turns into the handle by a clasp (*d*). The crystals of this salt are produced with great velocity, and are somewhat opaque, shooting from the edges of the drop, on both sides a main stem, and with a kind of regularity, rugged branches like those of some sorts of coral (*a a*). But sometimes, instead of these branches, sharp spiculæ, some plain, and others jagged, are protruded to a considerable depth on one side only (*b*). As the fluid exhales, some one of the branching figures generally extends to a great length, producing on one side shoots that are rugged and irregular, and on the other curious regular branches resembling those of some plant (*c*).

17. *Salt of Urine*, shoots from the edges of the drop in long parallelograms like nitre (*a a*). But in other places, along the sides of the drop solid angles are formed, that seem to be the rudiments of common salt (*b*). Some of the parallelograms increase much in size, and spread themselves in the middle, so as to change their first figure, and become three or four times bigger than the rest: and these have a dividing line that runs through their whole length from end to end, whence issue other short lines at small distances, opposite to one another; all pointing with the same degree of obliquity towards the base (*c c*). Among these enlarged figures, some few shoot still forward and tapering towards a point, but, before they form one, swell again, and begin as it were anew; and thus they proceed several times before their figure is quite finished (*a a*). The figures 1, 2, 3, 4, 5, 6, are the regular crystals of this salt when it is allowed to dissolve in the air, and no heat at all is given.

18. *Rheum*, or the clear liquor which distils from the nostrils when people catch cold, is strongly saturated with salt. A drop of it on a slip of glass will soon crystallize in a beautiful manner, either with or without heat; but if heated to about the warmth of the blood, and then viewed through the microscope, many lucid points will be seen rising and increasing gradually, till their form is shown to be quadrangular, with two transparent diagonals crossing each other (*d d*). These diagonals shoot soon after far beyond the square, protruding other lines at right angles from their sides; and thus they go on to form the most elegant and beautiful crystals (*b b, c c*). When a drop of rheum is set to crystallize without any heat, instead of branched crystals over the whole area, such are formed only in the middle; but, about the edges, plant-like figures

are produced shooting several stems from one point, and resembling a kind of sea-moss (*E*).

19. *Camphire*, though insoluble in water, dissolves very readily in spirit of wine. A drop of this solution spread upon a slip of glass crystallizes instantly in the beautiful manner represented in the figure.

20. *Manna* easily dissolves in water, and a drop of the solution is a very pretty object. Its first shootings are radiations from points at the very edge of the drop: the radiating lines seem opaque, but are very slender (*a a a*). Amongst these arise many minute transparent columns, whose ends grow wider gradually as they extend in length, and terminate at last with some degree of obliquity (*b*). Some few figures radiating from a centre every way, and circumscribed by an outline, are produced within the drop (*d d*). But the most surprising and elegant configuration is composed of many clusters of radiations shooting one from another over great part of the drop, and making all together a figure not unlike a certain very beautiful sea-plant (*C*).

The phenomena of crystallization have much engaged the attention of modern chemists, and a vast number of experiments has been made with a view to determine exactly the different figures assumed by salts in passing from a fluid to a solid form. It does not, however, appear, from all that has yet been done, that any certain rule can be laid down in these cases, as the figure of saline crystals may be varied by the slightest circumstances. Thus, sal ammoniac, when prepared by a mixture of pure volatile alkali with spirit of salt, shoots into crystals resembling feathers; but if, instead of a pure alkali, we make use of one just distilled from bones, and containing a great quantity of animal oil, we shall, after some crystallizations of the feathery kind, obtain the very same salt in the form of cubes.

Such salts as are sublimeable crystallize not only in the aqueous way by solution and evaporation, but also by sublimation; and the difference betwixt the figures of these crystals is often very remarkable. Thus sal ammoniac by sublimation never exhibits any appearance of feathery crystals, but always forms cubes or parallelopipeds. This method of crystallizing salts by sublimation has not as yet been investigated by chemists: nor indeed does the subject seem capable of investigation without much trouble; as the least augmentation of the heat beyond the proper degree would make the crystals run into a solid cake, while a diminution of it would cause them fall into powder. In aqueous solutions, too, the circumstances which determine the shapes of the crystals are innumerable; and the degree of heat, the quantity of salt contained in the liquor, nay, the quantity of liquor itself, and the various constitutions of the atmosphere at the time of crystallization, often occasion such differences as seem quite unaccountable and surprising.

Mr Bergman has given a dissertation on the various forms of crystals; which, he observes, always resemble geometrical figures more or less regular. Their variety at first appears infinite; but by a careful examination it will be found, that a great number of crystals, seemingly very different from each other, may be produced by the combination of a small number of original figures, which therefore he thinks may be called *primitive*. On this principle he explains the formation of

Crystallization.

5
Excessive
variety in
the forms
of crystals.

6

Mr Bergman's account of their formation.

Crystallization. of the crystalline gems as well as salts; and the results of his observations are as follow.

1. One of the primitive forms is that named by our author *spathaceous*; and these, he says, properly agglutinated, may form the great variety of dissimilar bodies found among crystals.

7
Of the
schoerla-
ceous cry-
stal.

Plate
CLIII.

8
Garnet
crystal.

9
Hyacinth.

10
Pyramidal
crystals.

In the calcareous spar we find a combination of rhombi, whose obtuse angles contain $101\frac{1}{2}$ degrees, and the acute $78\frac{1}{2}$. By a combination of these is formed the calcareous spar, which appears in the form of a tessera or oblique parallelopiped; but by other combinations of the same planes, crystals apparently of the most opposite forms may be generated. Thus, for the formation of an hexaedral prism, consisting of six equal and similar parallelograms terminating at both ends in three rhombi which form a solid angle, we have only to suppose a continual addition of rhombi equal, similar, and parallel to the oblique parallelopiped or crystal of the calcareous spar. Thus, suppose the figure ABCDE (fig. 1.) to represent a nucleus of the kind just mentioned, the axis of which passes through the two opposite angles B E; it is evident, that by a continual application of rhombi, such as FG, HI, &c. to both sides of the axis, we shall at last produce the figure A B, fig. 2. and which represents the hexaedral prism required. This kind of crystal, our author tells us, belongs chiefly to the stones called *schoerls*, and is therefore called the *schoerlaceous* form. It belongs likewise to some others of the calcareous tribe.

From the schoerlaceous crystal that of the garnet is easily produced by a stoppage of the accumulation of the planes as soon as the sides of the prism have acquired a rhomboidal figure. Thus a complete dodecahedron is formed, which is always the figure of the garnet when perfect.

The figure of the garnet is easily changed into another, frequently assumed by the hyacinth, by the regular application of equal and similar rhombi to each of the solid angles, which angles are formed by four planes. The garnet, when complete, has six angles composed of four planes, and eight with three. The formation of this kind of crystal will be understood from an inspection of fig. 3. In this operation the four rhombi are changed into an equal number of oblong hexagons; L H A B into L H *b a b B*: and so of the other rhombi represented by the different letters of the figure.

In some cases the original planes decrease according to a certain law; and this, from whatever cause it may arise, must necessarily change the appearance of the terminating planes, and occasionally either augment or diminish their number. Thus, instead of a prism, we shall have a double pyramid, one tending upwards and the other downwards, as will be easily understood from what has been already said. This is the form assumed by the calcareous crystals commonly called *pigtooth* by the miners.

If the decreasing series of rhombi is stopped before they vanish ultimately in a point, the formation of truncated pyramids, of which many examples are to be met with in the mineral kingdom, must necessarily take place. In cases of this kind, it is easy to see why the pyramids, if struck in one direction, will break over smoothly and easily, but not in another.

Nº 95.

It is not uncommon to find the original crystals themselves imperfect; in which case the large crystals, formed by combining them together, must deviate more or less from the perfect form. Thus, let A B C D E F G (fig. 4.) represent the three rhombi which constitute the apex of a perfect schoerlaceous crystal; and let us next suppose the rhombus A G truncated in the direction of the line *a b*, C G along *c d*, and E G along *e f*. Thus, the regular hexagonal figure of the prism A B C D E F will be changed into an irregular one *a b c d d e f F*, consisting of nine unequal sides, whose apex is composed of three irregular pentagons, *a b B G F*, *c d D C B*, and *e f F G D*. The rough tourmalins of Tyrol and Ceylon particularly assume this form, though it sometimes belongs to bodies both of the calcareous and schoerlaceous kind.

Triangular crystals may be supposed to arise from those of the pentagonal kind; it being obvious, that the periphery of a pentagon, as *a b B G F*, approaches more nearly to a triangle in proportion as the distance between *a b* and B F grows less: and when these distances vanish entirely, a triangular prism is formed, terminated by three triangles: if the cutting line *a b* approach still nearer to the centre G, the form still remains the same.

Let us now suppose, that the garnet crystal, whose shape is represented fig. 5. instead of complete rhombi, has others accumulated about its axis, whose three external angles are truncated; or, which is the same thing, if the longitudinal margins of the prism be cut by planes parallel to the axis, crystals will be formed, whose shape is represented by the small letters in the figure. Calcareous crystals are sometimes found of this shape; but generally so low, that *e* nearly coincides with *a*, *c* with *d*, &c. and hence the pentagon *a b c d e* becomes almost of a triangular figure, which has been attributed to these crystals by some authors who did not understand their true origin. The pyritaceous crystals sometimes afford instances of this kind complete. Sometimes the garnet consists of 24 sides, by having all the margins truncated; a change which may easily be understood from what has been already mentioned. If the intersection *c d* of the planes *e c* and *e r* fall without the plane B G, a figure of a very different kind will be generated.

Sometimes the hyacinthine crystal assumes the cruciform appearance A B C D E F G H I K L M, fig. 6. Here the apex is at C, the figure A B C *b c a* being all in the same inclined plane, which is the case with the other three homologous figures. Now, in order to investigate the formation of these crystals, let us suppose the rhombi C O, C P, and C Q, to be completed, which to an eye placed in the high axis C will appear like as many squares situated in the subjacent plane. Thus we may understand the formation of the crystals of granite as well as of the hyacinth. The former may be supposed a quadrangular prism composed of four rhombi, touching one another only at their apices, and terminated at each end by four rhombi meeting at the apex. When this form is a little protracted, or augmented by applying to the apices similar and equal planes, it becomes that of the hyacinth; whence the granite crystal may be called the rudiment of the hyacinth also. The variety here mentioned

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11
Deviations
from aper-
fect crystal-
line form.

12
Triangu-
lar crystals.

13
Varieties
of the gar-
net crystal.

14
Cruciform
hyacin-
thine cry-
stal.

Fig. 2.



Fig. 1.

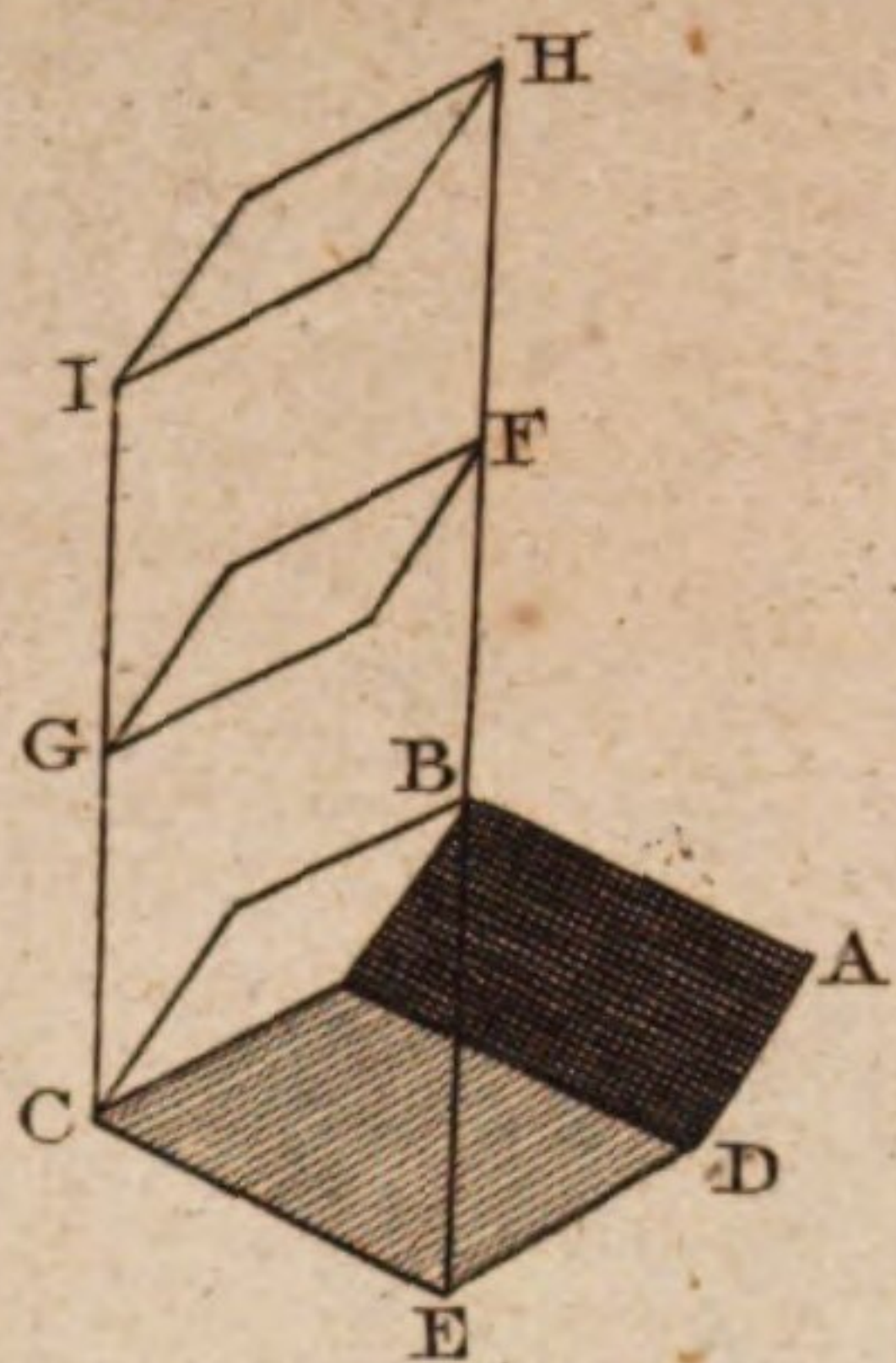


Fig. 3.

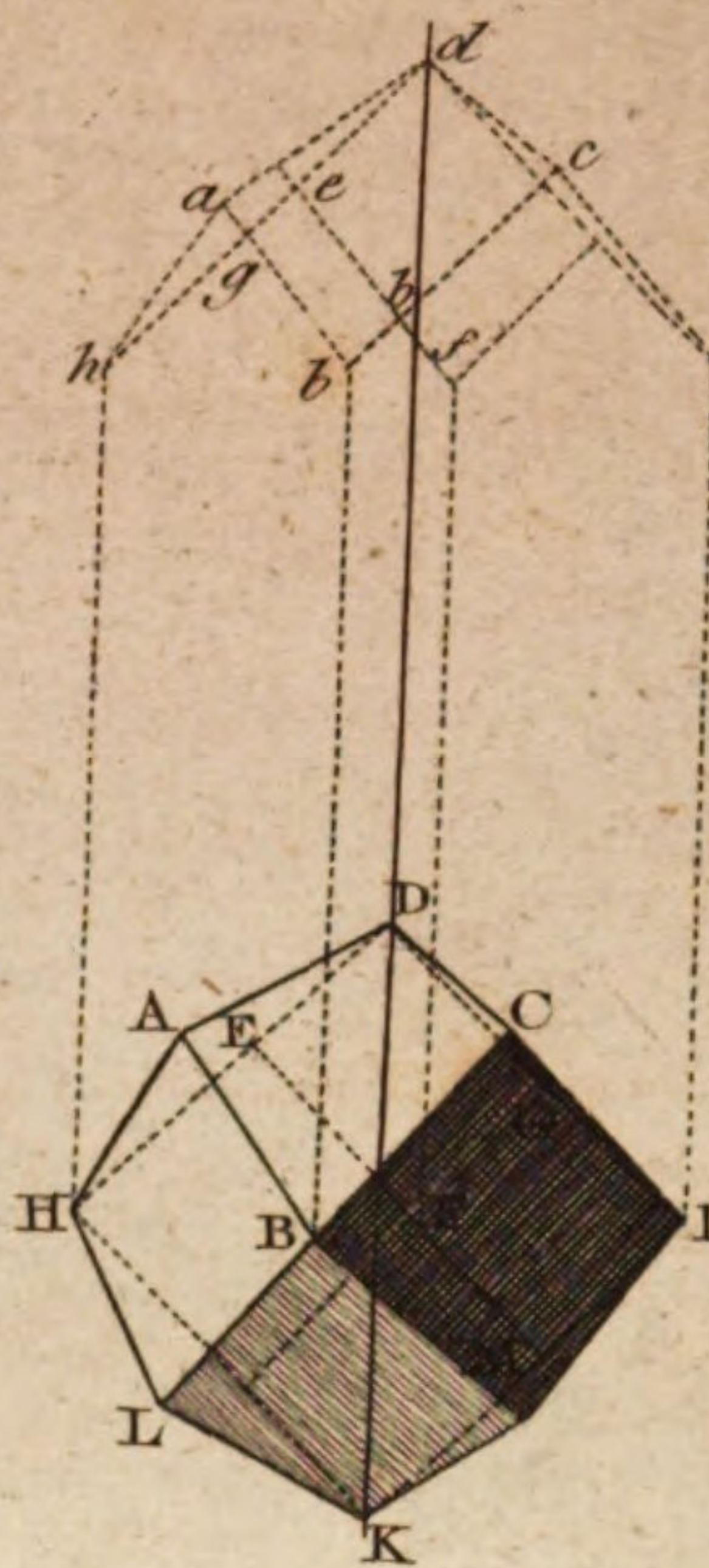


Fig. 6.

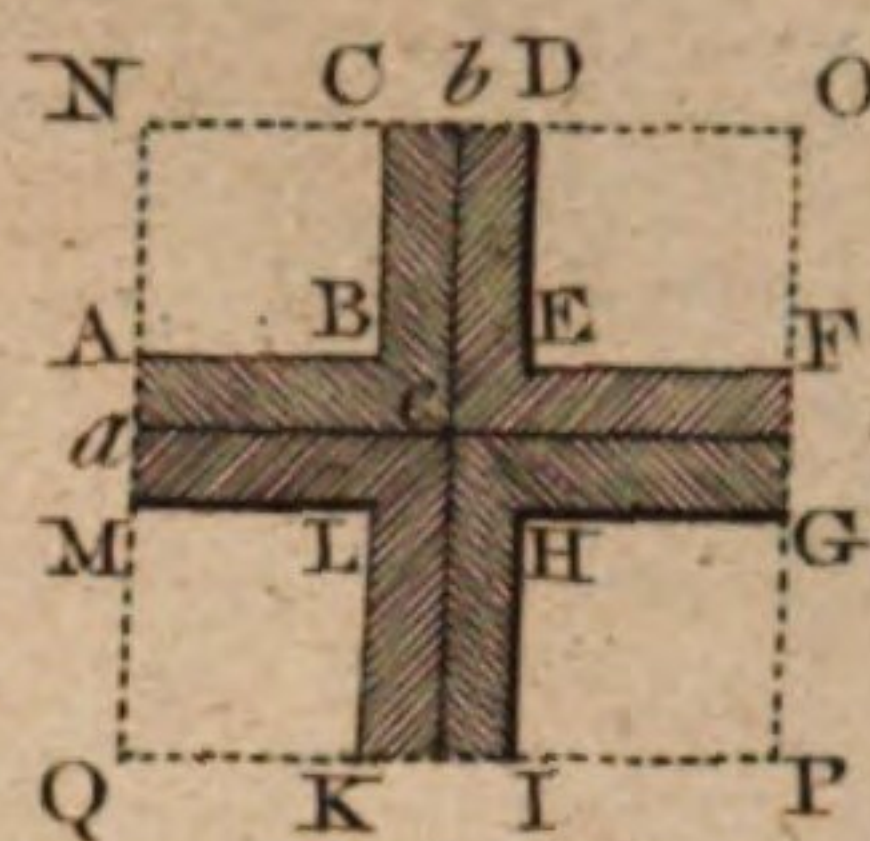


Fig. 7.



Fig. 10.

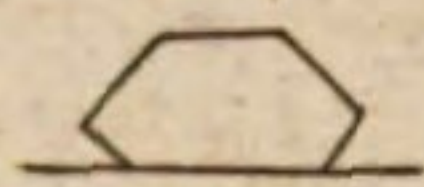


Fig. 8.



Fig. 5.

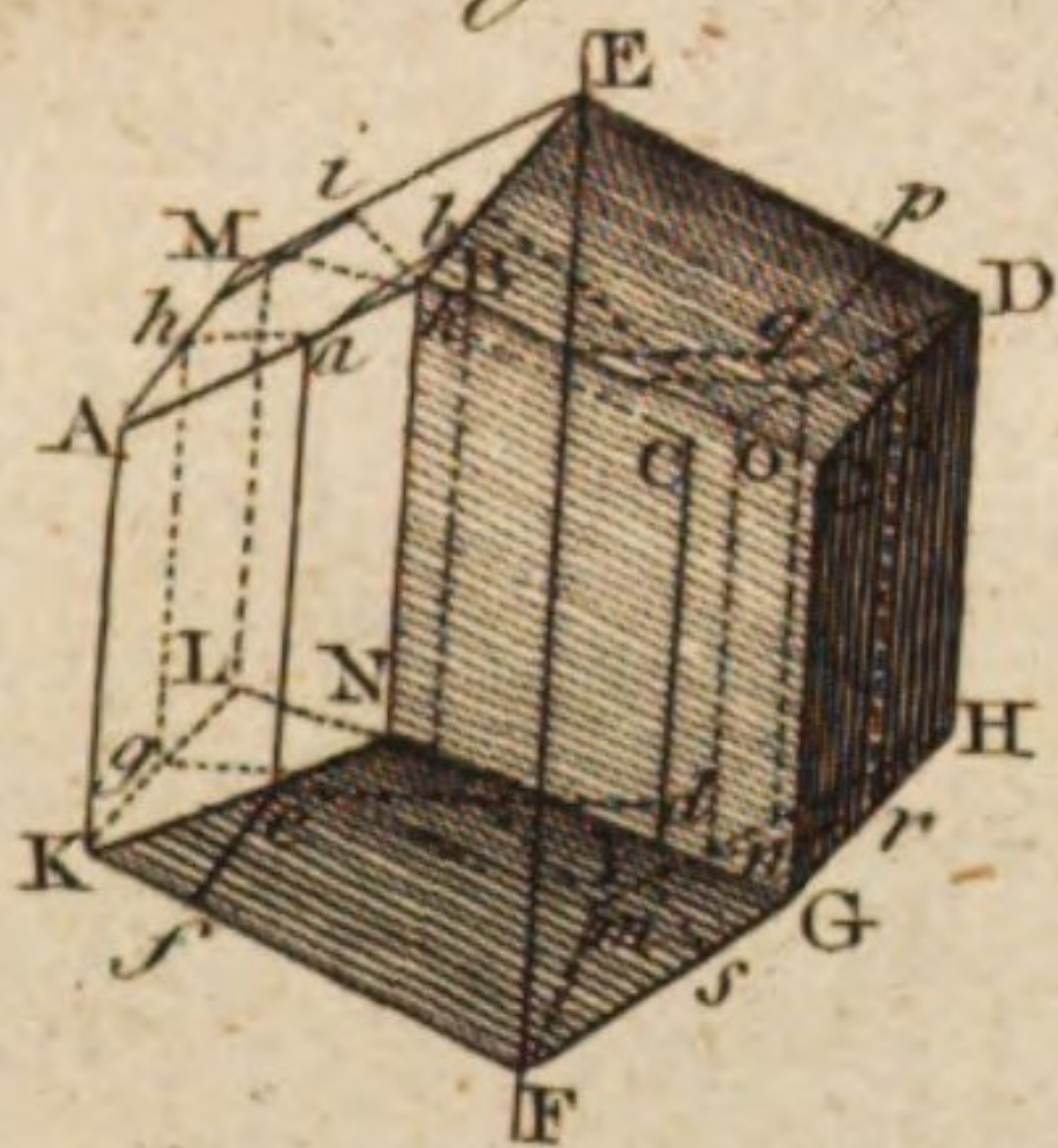


Fig. 11.



Fig. 9.

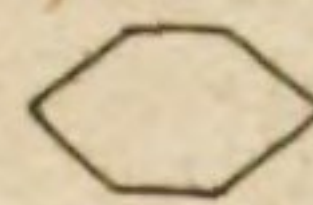


Fig. 4.

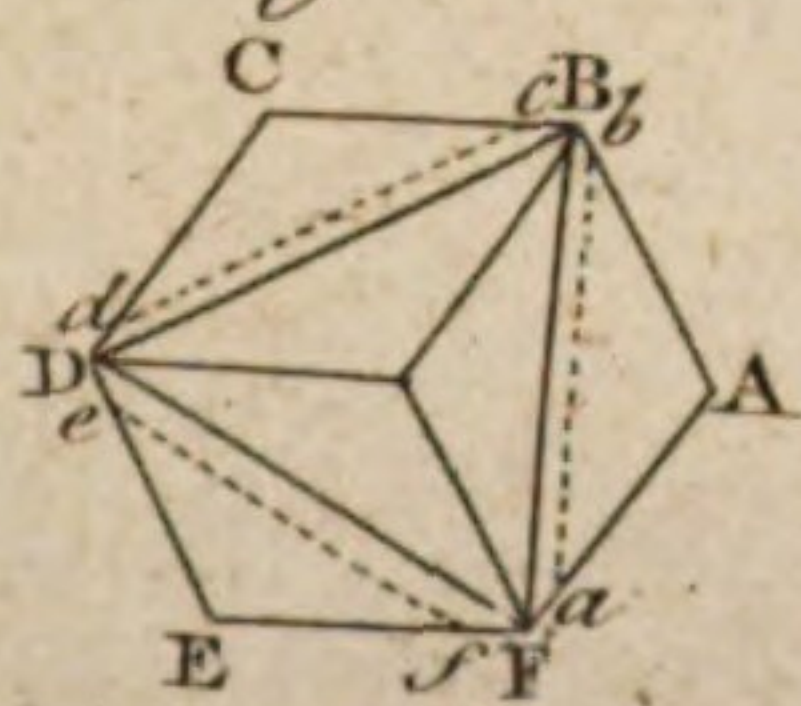


Fig. 12.



Fig. 14.

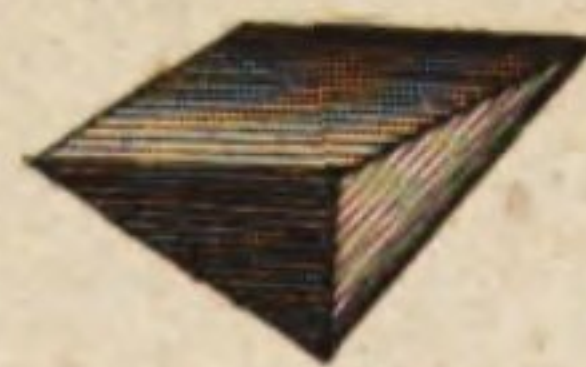


Fig. 15.



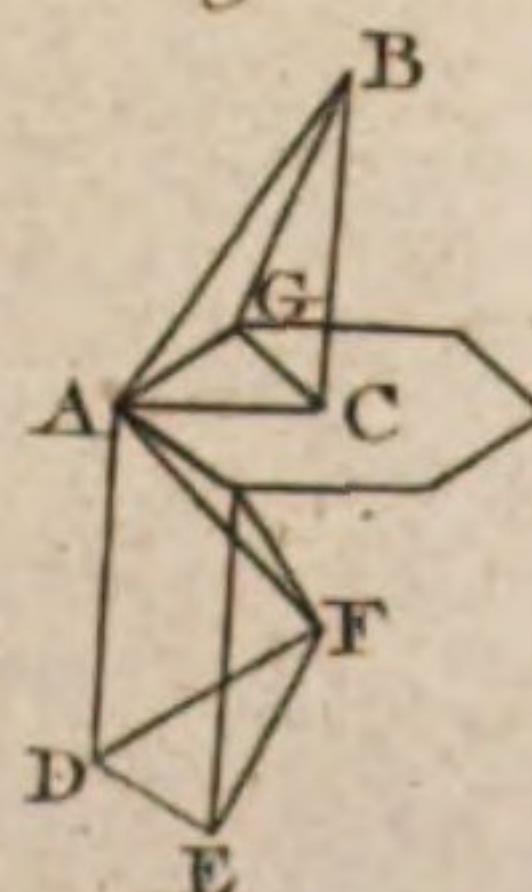
Fig. 13.



Fig. 19.



Fig. 20.



A. Bell Prin. W. A. Sculptor fecit.

Crystallization. mentioned, of hyacinthine crystals, is met with in the Hartz mines. Mr Ehrhart says, that they are of a filiceous, and not of a calcareous, nature.

¹⁵ Other varieties of the forms of crystals. If planes similar to one another, but dissimilar to the fundamental ones, be added, a vast variety of shapes may be produced, of which it is needless to give more examples at present. Our author appeals to experience for the truth of it; and asserts, that the loose texture of calcareous crystals will clearly show their construction, if carefully and completely broken. The harder crystals can scarcely be broken in such a manner as to show their structure; but the schoerls discover it very plainly, and even the garnets show themselves to be composed of laminae.

"Finally (says Mr Bergman), we may add one particular observation concerning prismatic and hexagonal calcareous crystals truncated perpendicularly; such sometimes occur, and they cannot derive their origin in the manner above described, from the spathaceous particles, and by no other way can hexagonal prisms be generated. What, then, is the cause which destroys their apices? I confess this to be a question which I am wholly unable to answer, unless we may assume an accumulation of planes more and more deficient around the axis. We may from hence conclude, that something unusual occurs; as the truncated extremity is opaque, while the rest of the prism is transparent; but the upper hexagonal section is smooth and polished."

On the whole, our author observes, that the greatest varieties may occur in the figures of crystals, though all of them may be generated from those of the spathaceous form, and the substance of all may be ultimately the same; whence we should be induced to put but little confidence in the figure. "If, then, (says he), this test, which undoubtedly is the most remarkable so far as externals reach, is of so little use, of what value can the others be? and with what success can we hope to form a system of mineralogy upon such distinctions? External criteria should certainly not be neglected, but he who trusts implicitly to them deceives himself."

¹⁶ Of the minute constituent parts of crystals.

II. From a consideration of the larger lamellae of which crystals are composed, our author naturally proceeds to an investigation of their smaller constituent parts. Here he is of opinion, that the different external appearance of all crystals is owing to varieties in their mechanical elements. A question, however, occurs, Whether those very minute molecules, which may, as it were, be called the *stamina* of crystals, be naturally possessed of a determinate angular figure, or whether they acquire it by crystallization? In answer to this, he mentions the following facts, which he has had an opportunity of observing himself.

1. "If the small particles which separate from lime-water, when exposed to the air, be inspected with a microscope, they will be found spathaceous.

2. "The greater spathous tesserae, when accurately examined, are frequently found with striæ running diagonally, such as often appear in saline crystals, by which their internal structure is discovered.

3. "The cubes of common salt not only exhibit diagonal striæ, but frequently, upon each side, show squares parallel to the external surface, and gradually decreasing inwards (fig. 7.) by which we discover their internal structure: for every cube is composed of

fix quadrangular hollow pyramids, joined by their apices and external surfaces; each of these filled up by others similar, but gradually decreasing, completes the form. By a due degree of evaporation, it is no difficult matter to obtain these pyramids separate and distinct, as in fig. 8. or six of such, either hollow, or more or less solid, joined round a centre. This is the whole course of the operation from beginning to end. This takes place in the salited vegetable alkali, or *sal digestivus Sylvii*; in the crystallized luna cornea; the galena or sulphurated lead; and quadrangular nitre, which is of the spathaceous form, produces a similar congeries of pyramids, and these almost equally distinct with the preceeding cubic crystals. A solution of alum upon evaporation, generally produces solid octaedra; but sometimes also it exhibits hollow pyramids, and upon such of them as are complete, the junctures are very distinctly marked by conspicuous lines.

4. "Sometimes, too, other salts indicate the same construction by visible diagonals. Fig. 9. represents a section of the hexagonal prism formed by Rochelle salt. The arrangement of the internal particles of this salt cannot be known when the crystal is complete; but when it is formed on the bottom of the vessel as represented fig. 10. the lower side cannot be perfect; and this parallelogram exhibits two diagonals distinctly, as represented fig. 11. This is likewise the case with the salt extracted from human urine, called *microcosmic salt*. Besides we should observe of the verticle triangles, that they are alternately transparent and opaque in pairs; which plainly points out a difference in the situation of their elements. Some crystals of nitre are also marked with diagonals; a circumstance which in others is generally concealed by the close connection of the particles.

5. "If we examine the hollow pyramid of common salt farther, we shall find it composed of four triangles, and each of these formed of threads parallel to the base; which threads upon accurate examination, are found to be nothing else than a series of small cubes: Therefore, although the above circumstances seem plainly to point out the formation of all crystals from the union and cohesion of pyramids, whose sides being different in form and magnitude, occasion the differences of forms; it yet remains uncertain whether the same internal structure takes place in those whose minuteness renders them totally invisible; and whether the primary stamina possess a determinate figure, or are composed by the union of many shapeless particles. We have long known, that the smallest concretions which are visible by a microscope possess a determined figure; but these are compounds. In the mean time, until this veil be removed in some measure at least, we cannot avoid comparing the process of crystallization with the congelation of water.

"While the watery particles are concreting, they exert a double tendency; by one of which they are formed into spiculæ, by the other these spiculæ are ranged in such a manner with respect to one another as to form angles of 60 degrees: from hence the varieties observed in the particles of snow may be easily explained. The most simple figure is that where six equal radii diverge from a centre in the angle above mentioned, as in fig. 12. The same angle will be preserved if the extremities of these be joined by right lines; which will also be the case, if each of the tri-

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angles thus formed be filled with right lines parallel to the base, as in fig. 13.

"Let us now suppose the particles which are employed in crystallization endowed with a tendency to form spiculæ, and these spiculæ with a tendency to arrange themselves at equal angles of inclination, and we shall have both the triangles and the pyramids composed of them, even although the primary stammina had not a determined figure. As the angles of inclination vary, the triangles and pyramids will also vary; and hence the different forms of crystals will be produced, which may to a certain degree be investigated geometrically, the angles being given.

17
Different
ways in
which they
may be
produced.

III. Mr Bergman now considers the various ways in which crystals may be produced; which are, 1. By water; 2. By a liquefying heat; 3. By a volatilizing heat.

1. The most common method of obtaining crystals is by means of water; as by this medium saline substances are very readily taken up, and appear again in a solid form when the liquid is properly diminished by evaporation. It is not only when dissolved in water that they acquire determinate forms; this happens also when they are sufficiently attenuated and mixed with it; for substances not soluble in water will remain suspended in it, when, by sufficient division, they have acquired as much surface as makes them approach the specific gravity of the fluid; and it seems very probable, that many of the earths met with in the mineral kingdom, which have a regular form, have coalesced in this way. We must, however, carefully distinguish between mechanical mixture and true solution, even though both should agree in weight. When solid bodies are mechanically mixed with water, they will remain at the bottom of the vessel if laid there in powder, unless diffused by agitation; but soluble substances totally and spontaneously distribute themselves through the menstruum even without any agitation, though this certainly accelerates the solution.

2. Another method of obtaining crystals is by fusion and slow cooling. Thus sulphur, when melted and cooled, shoots into long striæ, acquiring at the same time an electrical property: bismuth, zink, and regulus of antimony, acquire a tessellated appearance; nay, the last of these when set to cool in a conical mould, becomes stellated, not only on the upper surface or basis of the mass, but along the whole axis. Glass also, when melted and slowly cooled, will sometimes shoot into beautiful crystals. Our author mentions his having sometimes seen the scoria of furnaces, where iron had been melted with the addition of calcareous earth, of a regular prismatic figure; and when crude iron has been melted with lime, he has sometimes also found complete octaedra in the scoria. In large metallic masses, however, the under parts are generally so much pressed by the weight of those above, that they show no signs of crystallization, though beautiful crystals are often formed on the surface of gold, silver, iron, &c.

3. The particles of bodies volatilized by heat, if during cooling they are sufficiently at liberty, often obey the laws of attraction, and form crystals. To this class we may refer those which are condensed from the vapours of regulus of antimony, called the *flores argentinæ*. The galena which is frequently interspersed among the copper ore at Fahlun sends forth a vapour which condenses on the upper strata, forming hollow

pyramids, which are the bases of the cubes of galena, entirely similar to those which compose common salt. In the heaps of arsenical ore exposed to the fire at Loefa, our author has collected very beautiful crystals, of white, yellow, and red colours, partly tetraedral and partly octaedral. Some of these exhibit hollow pyramids, whose sides consist of threads parallel to the base, and exactly similar to those formed in the moist way. These crystals, when complete, frequently show the junctures of the pyramids very distinctly by straight lines; and by careful examination, we may be able to trace the whole process through its various steps, from the very beginning to the end of the operation.

Prisms of any kind may be formed by the apices of proper pyramids meeting together in a certain number round the same point. The apex may also be formed by a single pyramid having its vertical angle turned outward. Thus, by adding to the cube ABCD the quadrangular pyramids ABE DCF, we shall have a four-sided prism (fig. 16); and thus, though very seldom, common salt sometimes acquires an apex. If we apply to one or both of the apices of the Octaedron ACBD, fig. 17. a hollow pyramid *adb*, similar and equal to the fundamental figure, we will have a prism of the same kind: alum, however, has never been observed of a prismatic form by our author, tho' sometimes consisting of octaedra imperfectly joined together, as in fig. 18. Four-sided pyramids may be composed of four tetraedra, and consequently 24 of the same may make up a cube; "and (says our author) it has also a double apex of 32. Thus we have a new construction, which undoubtedly sometimes takes place; for, as I have already said, arsenical crystals sometimes take the tetraedral, sometimes the octaedral, form, which may therefore easily be mutually exchanged.

"It is with less facility that hexagonal prisms are formed of such pyramids as have the same number of sides, unless tetraedra be admitted. In fig. 19. four hexagonal and six tetragonal pyramids meet; the former are easily resolved into six and the latter into four tetraedra (fig. 20.); 48 of which consequently make up the whole mass, supposing this to be the method followed by nature. I have no doubt that this construction is probable on many accounts; for it requires only the most simple elements, and such as are conformable to the figures of all crystals. That tetraedra adapted to this purpose have sometimes dissimilar and unequal sides, makes not against the supposition: but what is most to the purpose is, that sometimes such tetraedra are employed without the smallest doubt. All these circumstances are of no small weight; but as long as no traces of tetraedra are to be found among the pyramids of common salt, the laws of sound reasoning forbid us to draw any general conclusion. I am perfectly certain that nature does frequently employ pyramids in this operation; it remains for future experiments to determine whether this be always the case."

IV. We come now to consider the ultimate cause of crystallization, concerning which there have been many different theories. Some have been of opinion that there cannot be any crystallization without a saline principle in some degree existing in the crystallizing substance. This opinion, however, is opposed by Mr Bergman on the following grounds:

1. He supposes crystallization to be an effect of attraction;

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Formation of
prisms of
various
kinds.

19

Different
theories of
crystallization.

Crystallization.

traction; consequently, as all other matters as well as salts are subject to the laws of that attraction, we cannot consider the regular and symmetrical form in which they arrange themselves as peculiar to saline bodies; and hence crystals are also produced by such methods as will sufficiently attenuate and disengage the integrant parts from each other.

2. The more simple that any saline body is, and the more free from any kind of heterogeneous matter, the more difficult it is to reduce it into a crystalline form. Thus the pure acids and caustic alkali cannot be made to assume the form of crystals without the greatest difficulty.

3. The similarity of forms in crystals, Mr Bergman observes, "does not depend upon the acid; as the prismatic and quadrangular nitre are formed from the same acid, though joined indeed to different alkalies. Neither is the basis sufficient to determine the figure; for the vegetable, as well as the mineral alkali, when saturated with marine acid, will produce cubical crystals. The external appearance, therefore, depends on the menstruum and the base jointly. We are not, however, to imagine from thence that there is present a neutral or middle salt whenever the figure of such a one is discoverable; for not the smallest particle of alum is found in nickel or lead when united with nitrous acid, though both these compounds yield octaedral crystals." Here we may again remark, that the figure of crystals depends upon circumstances altogether unknown, of which Dr Eason, in a paper on this subject in the Manchester Transactions, gives a remarkable instance in gypsum, which is known to be a combination of the vitriolic acid with a calcareous basis; yet this compound is found naturally crystallized in five ways, so very different from each other, that mineralogists have distinguished them by five distinct names, viz. 1. Lapis specularis. 2. Striated gypsum. 3. Gypseous alabaster. 4. Selenites properly so called. 5. A gypseous spar frequently adhering to the veins of ore in mountains. All of these, when chemically examined, exhibit precisely the same phenomena, and are really nothing but different crystallizations of the same compound salt.

4. Mr Bergman likewise observes, that there is a great variety in the forms of crystals, though the matter remains the same; of which examples have been given in the calcareous crystals, and in the different kinds of gypsum just mentioned. Among the pyrites also we meet with cubes striated in a very singular manner; the lines of one side being perpendicular to those which distinguish the different sides, as represented fig. 14.; but among these there are likewise tetraedra, octaedra, dodecaedra, and icosaedra, to be met with.

5. A great number of crystals are either totally destitute of any saline matter, or possess it in such a small degree that no experiments hitherto tried have been able to discover the smallest sensible traces of it. Thus mica sometimes shoots into hexangular prisms composed of parallel lamellæ, the elementary spiculæ of which are disposed as in fig. 15.; gems, schoerls, granites, and other earthly bodies, are frequently found figured, though no saline matter can be discovered by analysis; and the same holds good of gold, silver, lead, tin, bismuth, and zinc, united with mercury, all of which regular forms, according to the quantity of the mercury.

"If we have recourse (concludes Mr Bergman) to

the supposition of an hidden saline substance which cannot be discovered by art, it must surely be unreasonable to attribute to such a principle so great a power as that of arranging the particles in the order necessary for crystallization; a cause, beyond question, unequal to the magnitude of the effect: for how is it possible that a saline matter, the presence of the smallest atom of which cannot be discovered by the most delicate tests, shall in pure water have yet power to effect the icy crystallization with such force as to overcome the strongest obstacles? How can a saline matter, which by no test can be discovered, have power, in an amalgam of gold, to arrange the ponderous particles of both metals in a particular manner? What salt is able to form the stellated regulus of antimony? What the hexagonal lamellæ of mica?"

On this subject we may remark, that whether we affirm or deny a saline principle to be the cause of crystallization, the ultimate power by which it is effected must be equally unknown. A saline principle can make other bodies crystallize along with it only by virtue of the disposition it has of itself to assume a crystalline appearance; and we must therefore seek for the cause of this crystallization of the salt, as well as of the substance with which it is mixed. Mr Bergman, as well as others, have endeavoured to account for this on the principle of attraction; but with little success. Sir Isaac Newton supposes the particles of salt to be diffused through the solvent fluid at equal distances from each other; on which account he concludes that they must come together in regular figures. Mr Bergman considers the particles which form saline substances as endowed with a twofold tendency; one to arrange themselves in spiculæ, the other for the spiculæ to arrange themselves at certain angles of inclination; and as these angles vary, different forms of crystals must be produced. Both these effects, he thinks, may be owing to the same cause, viz. a mutual attraction between the particles; which, according to the various shapes and particular figures of the atoms, at one time arranges them in the form of spiculæ, and again connects the spiculæ already formed under different angles of inclination.

This seems to be much the same with what other chemists understand by the *polarity* of the saline particles, by which they are arranged in certain directions. All this, however, is totally insufficient to explain the phenomenon. If, according to Sir Isaac Newton's supposition, the particles were brought together by a general attraction, after being placed at equal distances by the solvent for some time, we must expect to find all kinds of salts crystallized in the same manner, or rather running into one solid lump. The arrangement of the particles, or their tendency to arrangement, assigned by Mr Bergman as a cause, is only explaining the phenomenon by itself; for it is the cause of this tendency which is the point in question. Now, that the attraction of the saline particles to each other cannot be the cause of crystalline arrangements, is evident from the following considerations: 1. The crystals of every kind of salt contain water as an essential part of their composition; and if deprived of this, they lose their crystalline form entirely, and fall into powder. It is plain, therefore, that the saline particles attract not only one another, but some part of the

Crystallization.

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All of them insufficient

Crystallization
||
Ctesibius.

the water which dissolves them; whence it seems probable that the processes of crystallization and vegetation are analogous to each other. This is likewise confirmed by the many curious vegetations of salts known by the name of *efflorescences*. These cannot be owing merely to attraction; because they frequently protrude from a large saline mass, in which they ought rather to be detained by the attraction of the rest. Thus, if a quantity of the residuum of Glauber's spirit of nitre distilled with a large proportion of vitriolic acid, be exposed to a moist air, beautiful ramifications somewhat resembling shrubs will sometimes shoot out to the length of more than an inch. This surely cannot be the effect of attraction; but rather of some repulsive power by which the particles of the large mass at first tend to separate from one another. 2. Attraction, in such a manner as would dispose the particles into certain determinate forms, cannot take place where they are all homogeneous, which must be the case with metals; all of which are capable of forming crystals when slowly cooled; such crystallizations, therefore, must be produced by some other power.

† See *Efflorescence*.

Mr Bergman considers the congelation of water as a species of crystallization; and in order to prove the similitude, he takes notice, that it is by means of the matter of heat that this element becomes fluid. He observes likewise, that salts, in the act of crystallizing, part with heat as water does in the act of being converted into ice. It would seem, therefore, that the particles were arranged in certain forms by the action of the heat when passing from a latent to a sensible state. From a late experiment, it would seem that the electric fluid was principally concerned. This was first discovered by Lichtenberg, and consists only in sprinkling powdered rosin upon an electrophorus, which in certain circumstances arranges itself into stars with radii similar to those of the crystals of snow. See ELECTRICITY.

CRYSTALS, in chemistry, salts or other matters shot or congealed in the manner of crystal. See CHEMISTRY-Index; and CRYSTALLIZATION.

CTESIAS, a native of Cnidos, who accompanied Cyrus the son of Darius in his expedition against his brother Artaxerxes; by whom he was taken prisoner. But curing Artaxerxes of a wound he received in the battle, he became a great favourite at the court of Persia, where he continued practising physic for 17 years, and was employed in several negotiations. He wrote the History of Persia in 23 books, and a History of the Indies: but these works are now lost, and all we have remaining of them is an abridgement compiled by Photius. The most judicious among the ancients looked upon Ctesias as a fabulous writer; yet several of the ancient historians and modern Christian writers have adopted in part his chronology of the Assyrian kings.

CTESIBIUS, a mathematician of Alexandria, about 120 years before Christ. He was the first who invented the pump. He also invented a clepsydra, or a water clock. This invention of measuring time by water was wonderful and ingenious. Water was let drop upon wheels which it turned: the wheels communicated their regular motion to a small wooden image, which by a gradual rise pointed with a stick

to the proper hours and months, which were engraved on a column near the machine. This artful invention gave rise to many improvements; and the modern manner of measuring time with an hour-glass is in imitation of the clepsydra of Ctesibius.

CTESIPHON, a celebrated Greek architect, who gave the designs for the famous temple of Ephesus, and invented a machine for bringing thither the columns to be used in that noble structure. He flourished 544 B. C.

CTESIPHON (anc. geog.), a large village, or rather a fine city, of Chalonitis, the most southern province of Assyria. It was situated on the left or east side of the Tigris, opposite to Seleucia on this side; and built by the Parthians, to rival Seleucia. Here the kings of Parthia passed the winter (Strabo); as they did the summer at Ecbatana.

CTESIPHON was also the name of several noted persons of antiquity. 1. An Athenian, who advised his fellow-citizens to crown publicly Demosthenes with a golden crown for his probity and virtue. This was opposed by the orator Æschines, the rival of Demosthenes, who accused Ctesiphon of seditious views. Demosthenes undertook the defence of his friend, in a celebrated oration still extant, and Æschines was banished. 2. A Greek architect, who made the plan of Diana's temple at Ephesus. 3. An elegiac poet, whom king Attalus set over his possessions in Æolia. 4. A Greek historian, who wrote an history of Bœotia.

CUB, a bear's whelp. Among hunters, a fox and marten of the first year are also called *cubs*. See URSUS.

CUBA, a large and very important island in the West Indies, belonging to Spain. On the east side it begins at 20. 20. N. Lat. touches the tropic of Cancer on the north, and extends from 74. to 85. 15. W. Long. It lies 60 miles to the west of Hispaniola, 25 leagues north of Jamaica, 100 miles to the east of Jucatan, and as many to the south of Cape Florida; and commands the entrance of the gulphs both of Mexico and Florida, as also the windward passages. By this situation it may be called the key of the West Indies. It was discovered by Columbus in 1492, who gave it the name of Ferdinando, in honour of king Ferdinand of Spain; but it quickly after recovered its ancient name of *Cuba*. The natives did not regard Columbus with a very favourable eye at his landing; and the weather proving very tempestuous, he soon left this island, and sailed to *Hayta*, now called *Hispaniola*, where he was better received. The Spaniards, however, soon became masters of it. By the year 1511 it was totally conquered; and in that time they had destroyed, according to their own accounts, several millions of people. But the possession of Cuba was far from answering the expectations of the Spanish adventurers, whose avarice could be satiated with nothing but gold. These monsters finding that there was gold upon the island, concluded that it must come from mines; and therefore tortured the few inhabitants they had left, in order to extort from them a discovery of the places where these mines lay. The miseries endured by these poor creatures were such that they almost unanimously resolved to put an end to their own lives; but were prevented by one of the

Ctesiphon
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Cuba.

Cuba. the Spanish tyrants called *Vasco Porcellos*. This wretch threatened to hang himself along with them, that he might have the pleasure, as he said, of tormenting them in the next world worse than he had done in this; and so much were they afraid of the Spaniards, that this threat diverted these poor savages from their desperate resolution. In 1511, the town of Havannah was built, now the principal place on the island. The houses were at first built only of wood; and the town itself was for a long time so inconsiderable, that in 1536 it was taken by a French pirate, who obliged the inhabitants to pay 700 ducats to save it from being burnt. The very day after the pirate's departure, three Spanish ships arrived from Mexico, and having unloaded their cargoes, sailed in pursuit of the pirate ship. But such was the cowardice of the officers, that the pirate took all the three ships, and returning to the Havannah, obliged the inhabitants to pay 700 ducats more. To prevent misfortunes of this kind, the inhabitants built their houses of stone; and the place has since been strongly fortified. See HAVANNAH.

According to the Abbé Raynal, the Spanish settlement at Cuba is very important, on three accounts: 1. The produce of the country, which is considerable. 2. As being the staple of a great trade; and, 3. As being the key to the West Indies. The principal produce of this island is cotton. The commodity, however, through neglect, is now become so scarce, that sometimes several years pass without any of it being brought into Europe. In place of cotton, coffee has been cultivated: but, by a similar negligence, that is produced in no great quantity; the whole produced not exceeding 30 or 35 thousand weight, one-third of which is exported to Vera Cruz, and the rest to Madrid. The cultivation of coffee naturally leads to that of sugar; and this, which is the most valuable production of America, would of itself be sufficient to give Cuba that state of prosperity for which it seems designed by nature. Although the surface of the island is in general uneven and mountainous, yet it has plains sufficiently extensive, and well enough watered, to supply the consumption of the greatest part of Europe with sugar. The incredible fertility of its new lands, if properly managed, would enable it to surpass every other nation, however they may have now got the start of it: yet such is the indolence of the Spaniards, that to this day they have but few plantations, where, with the finest canes, they make but a small quantity of coarse sugar at a great expence. This serves partly for the Mexican market, and partly for the mother-country; while the indolent inhabitants are content to import sugar for themselves at the expence of near 220,000 l. annually. It has been expected with probability, that the tobacco imported from Cuba would compensate this loss; for after furnishing Mexico and Peru, there was sufficient, with the little brought from Caracca and Buenos Ayres, to supply all Spain. But this trade too has declined through the negligence of the court of Madrid, in not gratifying the general taste for tobacco from the Havannah. The Spanish colonies have an universal trade in skins; and Cuba supplies annually about 10 or 12 thousand. The number might easily be increased in a country abounding with wild cattle where some gentlemen possess large

tracts of ground, that for want of population can scarce be applied to any other purpose than that of breeding cattle. The hundredth part of this island is not yet cleared. The true plantations are all confined to the beautiful plains of the Havannah, and even those are not what they might be. All these plantations together may employ about 25,000 male and female slaves. The number of whites, mestees, mulattoes, and free negroes, upon the whole island, amounts to about 30,000. The food of these different species consists of excellent pork, very bad beef, and cassava bread. The colony would be more flourishing, if its production had not been made the property of a company, whose exclusive privilege operates as a constant and invariable principal of discouragement. If any thing could supply the want of an open trade, and atone for the grievances occasioned by this monopoly at Cuba, it would be the advantage which this island has for such a long time enjoyed, in being the rendezvous of almost all the Spanish vessels that sail to the new world. This practice commenced almost with the colony itself. Ponce de Leon, having made an attempt upon Florida in 1512, became acquainted with the new canal of Bahama. It was immediately discovered that this was the best route the ships bound from Mexico to Europe could possibly take; and to this the wealth of the island is principally, if not altogether, owing.

CUBE, in geometry, a solid body consisting of six equal sides. See GEOMETRY.

CUBE-Root of any Number or Quantity, is such a number or quantity, which, if multiplied into itself, and then again the product thence arising by that number or quantity, being the cube root, this last product shall be equal to the number or quantity whereof it is the cube-root; as 2 is the cube root of 8; because two times 2 is 4, and two times 4 is 8; and $a+b$ is the cube root of $a^3 + 3aab + 3abb + b^3$. See ALGEBRA.

CUBEBS, in the materia medica, a small dried fruit resembling a grain of pepper, but often somewhat longer, brought into Europe from the island of Java. In aromatic warmth and pungency, they are far inferior to pepper.

CUBIC EQUATION. See ALGEBRA.

CUBIDIA, a genus of spars. The word is derived from *κῦβος*, "a die;" and is given them from their being of the shape of a common die, or of a cubic figure. These bodies owe this shape to an admixture of lead, and there are only two known species of the genus. 1. A colourless crystalline one, with thin flakes, found in the lead-mines of Yorkshire, and some other parts of the kingdom; and, 2. A milky white one with thicker crusts. This is found in the lead-mines of Derbyshire and Yorkshire, but is usually small, and is not found plentifully.

CUBIT, in the mensuration of the ancients, a long measure, equal to the length of a man's arm, from the elbow to the tip of the fingers.

Dr Arbuthnot makes the English cubit equal to 18 inches; the Roman cubit equal to 1 foot 5.406 inches; and the cubit of the scripture equal to 1 foot 9.888 inches.

CUBITÆUS MUSCLES, the name of two muscles of the hand. See ANATOMY, *Table of the Muscles*.

CUBITUS, in anatomy, a bone of the arm, reaching

Cube
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Cubitus.

Cuboides ing from the elbow to the wrist; otherwise called *ulna*, or the *greater fossile*. Some use the word for all that part of the arm between the elbow and the wrist; including the *ulna* or *cubitus*, properly so called, and the *radius*.

Cucubalus.

CUBOIDES, or *Q. CUBIFORME*, in anatomy, the seventh bone of the foot; so called from its being in form of a cube or die.

CUCKING-STOOL, an engine invented for punishing scolds and unquiet women, by ducking them in water; called in ancient times a *tumbrel*, and sometimes a *trebuchet*. In Domesday, it is called *cathedra stercoris*: and it was in use even in the Saxons time, by whom it was described to be *cathedra in qua rixosæ mulieres sedentes aquis demergebantur*. It was anciently also a punishment inflicted upon brewers and bakers transgressing the laws; who were thereupon in such a stool immersed over head and ears *in stercore*, some stinking water. Some think it a corruption from *ducking-stool*; others from *choaking stool*, *quia hoc modo demersæ aquis fere suffocantur*. See CASTIGATION.

CUCKOW, in ornithology. See **CUCULUS**.

Cuckow-Spit, the same with *froth-spit*. See *FROTH-Spit*, and *CICADA*.

CUCUBALUS, BERRY BEARING CHICKWEED: A genus of the trigynia order, belonging to the decandria class of plants; and in the natural method ranking under the 22d order, *Caryophylli*. The calyx is inflated; the petals five, unguiculated without a nectariferous corona at the throat; the capsule is trilocular. There are 13 species, the most remarkable of which are,

1. The *beken*, Swedish *lychnis*, or *gumsepungar*, is a native of several parts of Europe. The empalement of its flower is curiously wrought like a network and is of a purplish colour. The leaves have somewhat of the flavour of pease, and proved of great use to the inhabitants of Minorca in 1685, when a swarm of locusts had destroyed the harvest. The Gothlanders apply the leaves to erysipelatous eruptions. Horses, cows, sheep, and goats, eat this plant.

2. The *noctiflora*, or night-flowering *lychnis*, grows naturally in Spain and Italy. It is a perennial plant, rising with an upright branching stalk, a foot and an half high, garnished with very narrow leaves placed opposite. The upper part of the stalk branches very much; the flowers stand upon long naked footstalks, each supporting three or four flowers which have long tubes with striped empalements: the petals are large, deeply divided at top, and of a pale bluish colour. The flowers are closed all the day; but when the sun leaves them, they expand, and then emit a very agreeable scent. It may be propagated by seeds sown in the spring on a bed of light earth; and when the plants are fit to remove, they should be planted in a nursery-bed at about four inches distance, where they may remain till autumn. They may then be planted in the borders where they are to remain, and will flower the following year.

3. The *otites*, or catch-fly, is a native of Britain, and other European countries. It hath a thick, fleshy, perennial root, which strikes deep into the ground,

from whence rises a jointed stalk three or four feet high. At the joints there exudes a viscous clammy juice, that sticks to the fingers when handled; and the small insects which settle upon those parts of the stalks are thereby so fastened that they cannot get off. The flowers are small, and of a greenish colour. The plant is propagated by seeds.

CUCULUS, the Cuckow, in ornithology, a genus plate GLL. belonging to the order of *picæ*: the characters of which are: The bill is smooth, and more or less bending; the nostrils are bounded by a small rim; the tongue is short and pointed; the feet and toes formed for climbing. The most remarkable species are:

1. The *canorus*, or common cuckow, weighs about five ounces; and is in length 14 inches, in breadth 25. The bill is black, and about two thirds of an inch in length. The head, hind part of the neck, coverts of the wings and rump, are of a dove colour; darker on the head and paler on the rump. The throat and upper part of the neck are of a pale grey; the breast and belly white, crossed elegantly with undulated lines of black. The tail consists of ten feathers of unequal lengths; the two middle tail feathers are black tipped with white; the others are marked with white spots on each side their shafts. The legs are short; and the toes disposed two backwards and two forwards, like those of the wood pecker, though it is never observed to run up the sides of trees. The female differs in some respects. The neck before and behind is of a brownish red; the tail barred with the same colour and black, and spotted on each side the shaft with white. The young birds are brown mixed with black, and in that state have been described by some authors as old ones.

This bird appears in our country early in the spring, and makes the shortest stay with us of any bird of passage. It is compelled here, as Mr Stillingfleet observes, by that constitution of the air which causes the fig-tree put forth its fruit; though it has been supposed that some of these birds do not quit this island during the winter; but that they seek shelter in hollow trees and lie torpid, unless animated by unusually warm weather. Mr Pennant gives two instances of their being heard in February; one in 1771, in the end of that month; the other in 1769, on the 4th day; but after that they were heard no more, being probably chilled again into torpidity. There is a remarkable coincidence between the song of these birds and the mackarels continuing in full roe; that is, from about the middle of April to the latter end of June. The cuckow is silent for some time after his arrival; his note is a call to love, and used only by the male, who sits perched generally on some dead tree or bare bough, and repeats his song, which he loses as soon as the amorous season is over. His note is so uniform, that his name in all languages seems to have been derived from it; and in all countries it is used in the same reproachful sense:

The plain song *cuckow* grey,
Whose note full many a man doth mark,
And dares not answer nay. *Shakespeare.*

The reproach seems to arise from the cuckow's making use of the bed or nest of another to deposit its eggs in, leaving the care of its young to an improper parent;

Cuculus. parent: but Juvenal with more justice gives the infamy to the bird in whose nest the suppositious eggs were laid:

Tu tibi nunc corruca places.

On the natural history of this singular bird, we have a very curious paper by Mr Jenner, published in the *Philosophical Transactions* for 1788†. The first appearance of cuckows in this country, as already observed, is about the middle of April; (the 17th, according to Mr Jenner, whose observations were made in Gloucestershire). The song of the male, which is well known, soon proclaims its arrival. The song of the female (if the peculiar notes of which it is composed may be so called) is widely different, and has been so little attended to, that perhaps few are acquainted with it: the cry of the dab-chick bears some resemblance to it.

Unlike the generality of birds, cuckows do not pair. When a female appears on the wing, she is often attended by two or three males, who seem to be earnestly contending for her favours. From the time of her appearance till after the middle of summer the nests of the birds selected to receive her egg are to be found in great abundance; but, like the other migrating birds, she does not begin to lay till some weeks after her arrival.

It is on all hands allowed, that the cuckow does not hatch its own eggs; for which different reasons have been given, as will be afterwards noticed. The hedge-sparrow, the water-wagtail, the titlark, the red-breast, the yellow hammer, the green linnet, or the winchat, is generally the nurse of the young cuckow: but Buffon enumerates 20 sorts of nests at least in which they have deposited their eggs. It may be supposed, that the female cuckow lays her egg in the absence of the bird in whose nest she intends to deposite; as it has been known, that on sight of one of these a redbreast and its mate jointly attacked her on approaching the nest, putting her to flight; and so effectually drove her away, that she did not dare to return. Among the birds above mentioned, it generally, according to Mr Jenner's observations, selects the three first, but shows a much greater partiality to the hedge-sparrow. This last commonly takes up four or five days in laying her eggs. During this time (generally after she has laid one or two) the cuckow contrives to deposite her egg among the rest, leaving the future care of it entirely to the hedge-sparrow. This intrusion often occasions some discomposure: for the old hedge-sparrow at intervals, whilst she is sitting, not unfrequently throws out some of her own eggs, and sometimes injures them in such a way that they become addle; so that it more frequently happens that only two or three hedge-sparrows eggs are hatched with the cuckow's than otherwise. But whether this be the case or not, she sits the same length of time as if no foreign egg had been introduced, the cuckow's egg requiring no longer incubation than her own.

When the hedge-sparrow has sat her usual time, and disengaged the young cuckow and some of her own offspring from the shell*, her own young ones, and any of her eggs that remain unhatched, are soon turned out, the young cuckow remaining possessor of the nest, and sole object of her future care. The young birds are not previously killed, nor are the eggs

demolished; but all are left to perish together, either entangled about the bush which contains the nest, or lying on the ground under it.

“The early fate of the young hedge-sparrows (Mr Jenner observes) is a circumstance that has been noticed by others, but attributed to wrong causes. A variety of conjectures have been formed upon it. Some have supposed the parent cuckow the author of their destruction; while others, as erroneously, have pronounced them smothered by the disproportionate size of their fellow-nestling. Now the cuckow's egg being not much larger than the hedge-sparrow's (as I shall more fully point out hereafter), it necessarily follows, that at first there can be no great difference in the size of the birds just burst from the shell. Of the fallacy of the former assertion also I was some years ago convinced, by having found that many cuckows eggs were hatched in the nests of other birds after the old cuckow had disappeared, and by seeing the same fate then attend the nestling sparrows as during the appearance of old cuckows in this country. But before I proceed to the facts relating to the death of the young sparrows, it will be proper to lay before you some examples of the incubation of the egg, and the rearing of the young cuckow; since even the well-known fact, that this business is intrusted to the care of other birds, has been controverted by an author who has lately written on this subject†; and since, as it is a fact so much out of the ordinary course of nature, it may still probably be disbelieved by others.

“*Example 1.* The titlark is frequently selected by the cuckow to take charge of its young one; but as it is a bird less familiar than many that I have mentioned, its nest is not so often discovered. I have, nevertheless, had several cuckows eggs brought to me that were found in titlarks nests, and had one opportunity of seeing the young cuckow in the nest of this bird. I saw the old birds feed it repeatedly; and, to satisfy myself that they were really titlarks, shot them both, and found them to be so.

“*Example 2.* A cuckow laid her egg in a water-wagtail's nest in the thatch of an old cottage. The wagtail sat her usual time, and then hatched all the eggs but one; which, with all the young ones except the cuckow, was turned out of the nest. The young birds, consisting of five, were found upon the rafter that projected from under the thatch, and with them was the egg not in the least injured. On examining the egg, I found the young wagtail it contained quite perfect, and just in such a state as birds are when ready to be disengaged from the shell. The cuckow was reared by the wagtails till it was nearly capable of flying, when it was killed by an accident.

“*Example 3.* A hedge-sparrow built her nest in a hawthorn bush in a timber-yard. After she had laid two eggs, a cuckow dropped in a third. The sparrow continued laying as if nothing had happened, till she had laid five, her usual number, and then sat.

“June 20. 1786. On inspecting the nest, I found that the bird had hatched this morning, and that every thing but the young cuckow was thrown out. Under the nest I found one of the young hedge-sparrows dead, and one egg by the side of the nest entangled with the coarse woody materials that formed its outside covering. On examining the egg, I found one end of the shell

Cuculus.

† The Hon.
Daines
Barrington.

* The young cuckow is commonly hatched first.

Cuculus shell a little cracked, and could see that the sparrow sometimes drops its burden, and thus is foiled in its *Cuculus*. it contained was yet alive. It was then restored to endeavours; but, after a little respite, the work is repeated, and goes on almost incessantly till it is effected. the nest, but in a few minutes was thrown out. The egg being again suspended by the outside of the nest, It is wonderful to see the extraordinary exertions of was saved a second time from breaking. To see what the young cuckow, when it is two or three days old, would happen if the cuckow was removed, I took out if a bird be put into the nest with it that is too weighty for it to lift out. In this state it seems ever restless the cuckow, and placed the egg containing the hedge- and uneasy. But this disposition for turning out its sparrow in the nest in its stead. The old birds, during this time, flew about the spot, showing signs of companions begins to decline from the time it is two or three till it is about twelve days old; when, as far as I have hitherto seen, it ceases. Indeed, the disposition for throwing out the egg appears to cease a few days sooner; for I have frequently seen the young cuckow, after it had been hatched nine or ten days, remove a nestling that had been placed in the nest with it, when it suffered an egg, put there at the same time, to remain unmolested. The singularity of its shape is well adapted to these purposes; for, different from other newly-hatched birds, its back, from the scapulæ downwards, is very broad, with a considerable depression in the middle. This depression seems formed by nature for the design of giving a more secure lodgement to the egg of the hedge-sparrow or its young one when the young cuckow is employed in removing either of them from the nest. When it is about 12 days old, this cavity is quite filled up, and then the back assumes the shape of nestling birds in general.

“ From these experiments, and supposing, from the feeble appearance of the young cuckow just disengaged from the shell, that it was utterly incapable of displacing either the egg or the young sparrows, I was induced to believe that the old sparrows were the only agents in this seeming unnatural business. But I afterwards clearly perceived the cause of this strange phenomenon, by discovering the young cuckow in the act of displacing its fellow-nestlings, as the following relation will fully evince.

“ June 18. 1787, I examined the nest of a hedge-sparrow, which then contained a cuckow's and three hedge-sparrow's eggs. On inspecting it the day following, I found the bird had hatched, but that the nest now contained only a young cuckow and one young hedge sparrow. The nest was placed so near the extremity of a hedge, that I could distinctly see what was going forward in it; and, to my astonishment, saw the young cuckow, though so newly hatched, in the act of turning out the young hedge-sparrow.

“ The mode of accomplishing this was very curious. The little animal, with the assistance of its rump and wings, contrived to get the bird upon its back; and making a lodgement for the burden by elevating its elbows, clambered backward with it up the side of the nest till it reached the top; where resting for a moment, it threw off its load with a jerk, and quite disengaged it from the nest. It remained in this situation a short time, feeling about with the extremities of its wings, as if to be convinced whether the business was properly executed, and then dropped into the nest again. With these (the extremities of its wings) I have often seen it examine, as it were, an egg and nestling before it began its operations; and the nice sensibility which these parts appeared to possess, seemed sufficiently to compensate the want of sight, which as yet it was destitute of. I afterwards put in an egg; and this, by a similar process, was conveyed to the edge of the nest and thrown out. These experiments I have since repeated several times in different nests, and have always found the young cuckow disposed to act in the same manner. In climbing up the nest, it

“ Having found that the old hedge-sparrow commonly throws out some of her own eggs after her nest has received the cuckow's, and not knowing how she might treat her young ones if the young cuckow was deprived of the power of dispossessing them of the nest, I made the following experiment:

“ July 9. A young cuckow, that had been hatched by a hedge-sparrow about four hours, was confined in the nest in such a manner that it could not possibly turn out the young hedge sparrows which were hatched at the same time, though it was almost incessantly making attempts to effect it. The consequence was, the old birds fed the whole alike, and appeared in every respect to pay the same attention to their own young as to the young cuckow, until the 13th, when the nest was unfortunately plundered.

“ The smallness of the cuckow's egg, in proportion to the size of the bird, is a circumstance that hitherto, I believe, has escaped the notice of the ornithologist. So great is the disproportion, that it is in general smaller than that of the house-sparrow; whereas the difference in the size of the birds is nearly as five to one. I have used the term *in general*, because eggs produced at different times by the same bird vary very much in size. I have found a cuckow's egg so light that it weighed only 43 grains, and one so heavy that it weighed 55 grains. The colour of the cuckow's eggs is extremely variable. Some, both in ground and penciling, very much resemble the house-sparrow's; some are indistinctly covered with bran coloured spots; and others are marked with lines of black, resembling, in some measure, the eggs of the yellow hammer.

“ The circumstance of the young cuckow's being destined by nature to throw out the young hedge-sparrows, seems to account for the parent cuckow's dropping her egg in the nests of birds so small as those I have particularised. If she were to do this in the nest of a bird which produced a large egg, and consequently,

Cuculus. quently a large nestling, the young cuckow would probably find an insurmountable difficulty in solely possessing the nest, as its exertions would be unequal to the labour of turning out the young birds. Besides, though many of the larger birds might have fed the nestling cuckow very properly had it been committed to their charge, yet they could not have suffered their own young to have been sacrificed for the accommodation of the cuckow in such great number as the smaller ones, which are so much more abundant; for though it would be a vain attempt to calculate the numbers of nestlings destroyed by means of the cuckow, yet the slightest observation would be sufficient to convince us that they must be very large."

Here Mr Jenner remarks, that though nature permits the young cuckow to make this great waste, yet the animals thus destroyed are not thrown away or rendered useless. At the season when this happens, great numbers of tender quadrupeds and reptiles are seeking provision; and if they find the callow nestlings which have fallen victims to the young cuckow, they are furnished with food well adapted to their peculiar state.

It appears a little extraordinary, that two cuckows eggs should ever be deposited in the same nest, as the young one produced from one of them must inevitably perish; yet two instances of this kind fell under our author's observation, one of which he thus relates: "June 27. 1787. Two cuckows and a hedge sparrow were hatched in the same nest this morning; one hedge-sparrow's egg remained unhatched. In a few hours after, a contest began between the cuckows for the possession of the nest, which continued undetermined till the next afternoon, when one of them, which was somewhat superior in size, turned out the other, together with the young hedge-sparrow and the unhatched egg. This contest was very remarkable. The combatants alternately appeared to have the advantage, as each carried the other several times nearly to the top of the nest, and then sunk down again, oppressed by the weight of its burden; till at length, after various efforts, the strongest prevailed, and was afterwards brought up by the hedge-sparrows."

But the principal circumstance that has agitated the mind of the naturalist respecting the cuckow is, Why, like other birds, it should not build a nest, incubate its eggs, and rear its own young?

There is no apparent reason, Mr Jenner thinks, why this bird, in common with others, should not perform all these several offices; for it is in every respect perfectly formed for collecting materials and building a nest. Neither its external shape nor internal structure prevent it from incubation; nor is it by any means incapacitated from bringing food to its young. It would be needless to enumerate the various opinions of authors on this subject from Aristotle to the present time. Those of the ancients appear to be either visionary or erroneous; and the attempts of the moderns towards its investigation have been confined within very narrow limits: for they have gone but little further in their researches than to examine the constitution and structure of the bird; and having found it possessed of a capacious stomach with a thin external covering, concluded that the pressure upon this part, in a sitting posture, prevented incubation. They have

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not considered that many of the birds which incubate have stomachs analogous to those of cuckows. The stomach of the owl, for example, is proportionably capacious, and is almost as thinly covered with external integuments. Nor have they considered, that the stomachs of nestlings are always much distended with food; and that this very part, during the whole time of their confinement to the nest, supports in a great degree the weight of the whole body: whereas, in a sitting bird, it is not nearly so much pressed upon, for the breast in that case fills up chiefly the cavity of the nest; for which purpose, from its natural convexity, it is admirably well fitted.

These observations may be sufficient to show, that the cuckow is not rendered incapable of sitting through any peculiarity either in the situation or formation of the stomach; yet, as a proof still more decisive, our observer adduces the following fact.

"In the summer of the year 1786, I saw, in the nest of a hedge-sparrow, a cuckow, which, from its size and plumage, appeared to be nearly a fortnight old. On lifting it up in the nest, I observed two hedge-sparrows eggs under it. At first I supposed them part of the number which had been sat upon by the hedge sparrow with the cuckow's egg, and that they had become addle, as birds frequently suffer such eggs to remain in their nests with their young; but on breaking one of them I found it contained a living *foetus*; so that of course these eggs must have been laid several days after the cuckow was hatched; as the latter now completely filled up the nest, and was by this peculiar incident performing the part of a sitting-bird. At this time I was unacquainted with the fact, that the young cuckow turned out the eggs of the hedge-sparrow; but it is reasonable to conclude, that it had lost the disposition for doing this when these eggs were deposited in the nest.

"Having under my inspection, in another hedge-sparrow's nest, a young cuckow about the same size as the former, I procured two wagtails eggs which had been sat upon a few days, and had them immediately conveyed to the spot, and placed under the cuckow. On the ninth day after the eggs had been in this situation, the person appointed to superintend the nest (as it was some distance from the place of my residence) came to inform me that the wagtails were hatched. On going to the place, and examining the nest, I found nothing in it but the cuckow and the shells of the wagtail's eggs. The fact, therefore, of the birds being hatched, I do not give you as coming immediately under my own eye; but the testimony of the person appointed to watch the nest was corroborated by that of another witness."

In considering to what causes may be attributed the singularities of the cuckow, Mr Jenner suggests the following as the most probable: "*The short residence this bird is allowed to make in the country where it is destined to propagate its species; and the call that nature has upon it, during that short residence, to produce a numerous progeny.* The cuckow's first appearance here is about the middle of April, commonly on the 17th. Its egg is not ready for incubation till some weeks after its arrival, seldom before the middle of May. A fortnight is taken up by the sitting-bird in hatching the egg. The young bird generally continues three weeks

Cuculus. in the nest before it flies, and the foster-parents feed it more than five weeks after this period; so that if a cuckow should be ready with an egg much sooner than the time pointed out, not a single nestling, even one of the earliest, would be fit to provide for itself before its parent would be instinctively directed to seek a new residence, and be thus compelled to abandon its young one; for old cuckows take their final leave of this country the first week in July.

"Had nature allowed the cuckow to have staid here as long as some other migrating birds, which produce a single set of young ones (as the swift or nightingale, for example), and had allowed her to have reared as large a number as any bird is capable of bringing up at one time, these might not have been sufficient to have answered her purpose; but by sending the cuckow from one nest to another, she is reduced to the same state as the bird whose nest we daily rob of an egg, in which case the stimulus for incubation is suspended. Of this we have a familiar example in the common domestic fowl. That the cuckow actually lays a great number of eggs, dissection seems to prove very decisively. Upon a comparison I had an opportunity of making between the ovarium, or *racemus vitellorum*, of a female cuckow, killed just as she had begun to lay, and of a pullet killed in the same state, no essential difference appeared. The uterus of each contained an egg perfectly formed, and ready for exclusion; and the ovarium exhibited a large cluster of eggs, gradually advanced from a very diminutive size to the greatest the yolk acquires before it is received into the oviduct. The appearance of one killed on the third of July was very different. In this I could distinctly trace a great number of the membranes which had discharged yolks into the oviduct; and one of them appeared as if it had parted with a yolk the preceding day. The ovarium still exhibited a cluster of enlarged eggs, but the most forward of them was scarcely larger than a mustard seed.

"I would not be understood to advance, that every egg which swells in the ovarium at the approach or commencement of the propagating season is brought to perfection; but it appears clearly, that a bird, in obedience to the dictates of her own will, or to some hidden cause in the animal economy, can either retard or bring forward her eggs. Besides the example of the common fowl above alluded to, many others occur. If we destroy the nest of a blackbird, a robin, or almost any small bird, in the spring, when she has laid her usual number of eggs, it is well known to every one who has paid any attention to inquiries of this kind, in how short a space of time she will produce a fresh set. Now, had the bird been suffered to have proceeded without interruption in her natural course, the eggs would have been hatched, and the young ones brought to a state capable of providing for themselves, before she would have been induced to make another nest, and excited to produce another set of eggs from the ovarium. If the bird had been destroyed at the time she was sitting on her first laying of eggs, dissection would have shown the ovarium containing a great number in an enlarged state, and advancing in the usual progressive order. Hence it plainly appears, that birds can keep back or bring forward (under certain limitations) their eggs at any

time during the season appointed for them to lay; but the cuckow, not being subject to the common interruptions, goes on laying from the time she begins till the eve of her departure from this country: for although old cuckows in general take their leave the first week in July (and I never could see one after the 5th day of that month, though I conceive it possible that here and there a straggling cuckow may be seen after this time); yet I have known an instance of an egg's being hatched in the nest of an hedge sparrow so late as the 15th. And a farther proof of their continuing to lay till the time of their leaving us may, I think, be fairly deduced from the appearances on dissection of the female cuckow above mentioned, killed on the 3d of July."

Among the many peculiarities of the young cuckow, there is one that shows itself very early. Long before it leaves the nest, it frequently, when irritated, assumes the manner of a bird of prey, looks ferocious, throws itself back, and pecks at any thing presented to it with great vehemence, often at the same time making a chuckling noise like a young hawk. Hence probably the vulgar opinion, that this bird changes into a hawk and devours its nurse on quitting its nest; whence the French proverb, *Ingrat comme un coucou*. Sometimes, when disturbed in a smaller degree, it makes a kind of hissing noise, accompanied with a heaving motion of the whole body.

The growth of the young cuckow is uncommonly rapid. Its chirp is plaintive, like that of the hedge-sparrow; but the sound is not acquired from the foster-parent, as it is the same whether it be reared by the hedge-sparrow or any other bird. It never acquires the adult note during its stay in this country.

The stomachs of young cuckows contain a great variety of food. On dissecting one that was brought up by wagtails, and fed by them at the time it was shot (though it was nearly of the size and fulness of plumage of the parent bird), Mr Jenner found in its stomach the following substances: Flies and beetles of various kinds; small snails with their shells unbroken; grasshoppers; caterpillars; part of a horse bean; a vegetable substance, resembling bits of tough grass, rolled into a ball; and the seeds of a vegetable that resembled those of the goose-grass. In the stomach of one fed by hedge-sparrows, the contents were almost entirely vegetable; such as wheat, small vetches, &c. "But this (says our author) was the only instance of the kind I had ever seen, as these birds in general feed the young cuckow with scarcely any thing but animal food. However, it served to clear up a point which before had somewhat puzzled me; for having found the cuckow's egg in the nest of a green linnet, which begins very early to feed its young with vegetable food, I was apprehensive, till I saw this fact, that this bird would have been an unfit foster parent for the young cuckow.

"The titlark, I observe, feeds it principally with grasshoppers.

"But the most singular substance, so often met with in the stomachs of young cuckows, is a ball of hair curiously wound up. I have found it of various sizes, from that of a pea to that of a small nutmeg. It seems to be composed chiefly of horse hairs; and from the resemblance it bears to the inside covering of the nest,

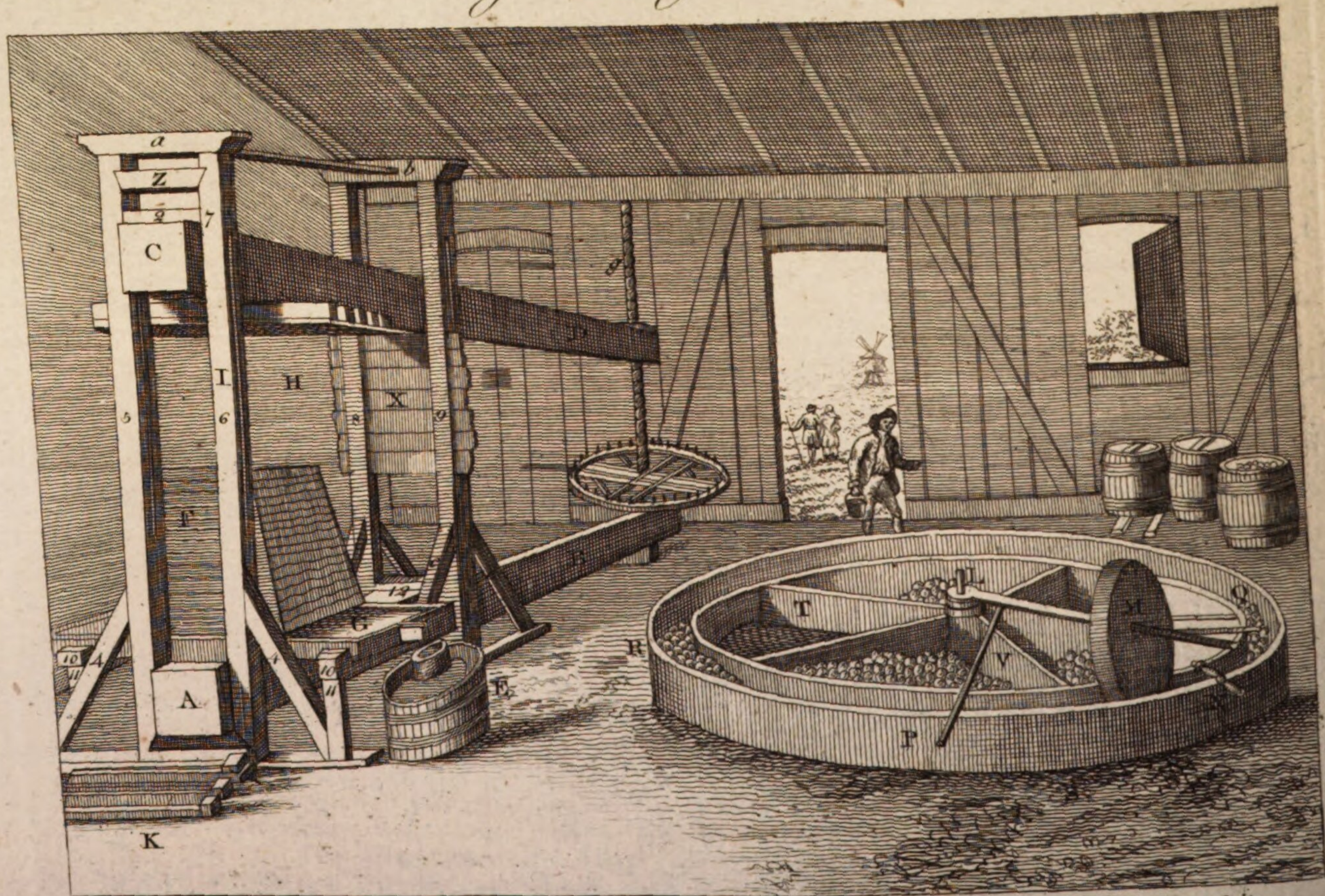
*Fig. 1. Cuculus Indicator.
or Honey Guide.*

Plate CLIV.

*Fig. 3.
Cypraea.*



*Fig. 2.
Cyder Press.*



A. Bell Pin. Wals Sculptor fecit.

Cuculus.

nest. I conceive the bird swallows it while a nestling. In the stomachs of old cuckows are often seen masses of hair; but these had evidently once formed a part of the hairy caterpillar, which the cuckow often takes for its food."

There seems to be no precise time fixed for the departure of young cuckows. Mr Jenner believes they go off in succession, probably as soon as they are capable of taking care of themselves; for although they stay here till they become nearly equal in size and growth of plumage to the old cuckow, yet in this very state the fostering care of the hedge-sparrow is not withdrawn from them. "I have frequently (says he) seen the young cuckow of such a size that the hedge-sparrow has perched on its back, or half expanded wing, in order to gain sufficient elevation to put the food into its mouth. At this advanced stage, I believe that young cuckows procure some food for themselves; like the young rook, for instance, which in part feeds itself, and is partly fed by the old ones, till the approach of the pairing season. If they did not go off in succession, it is probable we should see them in large numbers by the middle of August; for as they are to be found in great plenty when in a nestling state, they must now appear very numerous, since all of them must have quitted the nest before this time. But this is not the case; for they are not more numerous at any season than the parent-birds are in the months of May and June.

"The same instinctive impulse which directs the cuckow to deposit her eggs in the nests of other birds, directs her young one to throw out the eggs and young of the owner of the nest. The scheme of nature would be incomplete without it; for it would be extremely difficult, if not impossible, for the little birds destined to find succour for the cuckow, to find it also for their own young ones after a certain period; nor would there be room for the whole to inhabit the nest."

It is supposed, that there are more male cuckows than females; since two are often seen in dispute where a third has been in sight; which, no doubt, was of the opposite sex. Mr Pennant observed, that five male birds were caught in a trap in one season; and Mr Latham says, that "out of at least half a dozen that I have attended to, my chance has never directed me to a female; and it is to be wished, that future observers may determine whether our observations have rise only in chance, or are founded on the general circumstance." He believes that the male birds are more liable to be shot, their note directing the gunner where to take aim, while the female is secured by her silence.

Cuckows may be, and often are, brought up tame, so as to become familiar. They will eat in this state bread and milk, fruits, insects, eggs, and flesh either cooked or raw; but in a state of nature, I believe, chiefly live on caterpillars; which, in the few I have observed, were all of the smooth kind; others have found vegetable matter, beetles, and small stones. When fat, they are said to be as good eating as a land rail. The French and Italians eat them to this day. The ancient Romans admired them greatly as food: Pliny says that there is no bird which can be compared to them for delicacy.

In migrating, the major part of these birds are supposed to go into Africa, since they are observed to visit

the island of Malta twice in a year, in their passage backwards and forwards, as is supposed, to that part of the world. They are well known also at Aleppo. To the north, it is said to be common in Sweden; but not to appear so early by a month as with us. Russia is not destitute of this bird; and Mr Latham has seen a specimen brought from Kamtschatka, now in the possession of Sir Joseph Banks.

2. The Americanus, or cuckow of Carolina. It is about the size of a blackbird, the upper mandible of the bill black, the lower yellow; the large wing-feathers are reddish; the rest of the wing, and all the upper part of the body, head and neck, is of an ash-colour; all the under part of the body, from the bill to the tail, white; the tail long and narrow, composed of six long and four shorter feathers; their legs short and strong. Their note is very different from the cuckow of this country, and not so remarkable to be taken notice of. It is a solitary bird, frequenting the darkest recesses of woods and shady thickets. They retire on the approach of winter.

3. The indicator, or honey-guide, is a native of Africa. The following description is given of it by Dr Sparrman in the Philosophical Transactions for 1777. "This curious species of cuckow is found at a considerable distance from the Cape of Good Hope, in the interior parts of Africa, being entirely unknown at that settlement. The first place I heard of it was in a wood called the *Groot-vader's Bosch*, "the Grand father's Wood," situated in a desert near the river which the Hottentots call *T'kaut'kai*. The Dutch settlers thereabouts have given this bird the name of *boniguyzer*, or "honey-guide," from its quality of discovering wild honey to travellers. Its colour has nothing striking or beautiful. Its size is considerably smaller than that of our cuckow in Europe: but in return, the instinct which prompts it to seek its food in a singular manner is truly admirable. Not only the Dutch and Hottentots, but likewise a species of quadruped named *ratel* (probably a new species of badger), are frequently conducted to wild bee hives by this bird, which, as it were, pilots them to the very spot. The honey being its favourite food, its own interest prompts it to be instrumental in robbing the hive, as some scraps are commonly left for its support. The morning and evening are its times of feeding, and it is then heard calling in a shrill tone, *cherr, cherr*; which the honey-hunters carefully attend to as the summons to the chace. From time to time they answer with a soft whistle; which the bird hearing, always continues its note. As soon as they are in sight of each other, the bird gradually flutters towards the place where the hive is situated, continually repeating its former call of *cherr, cherr*: nay, if it should happen to have gained a considerable way before the men (who may easily be hindered in the pursuit by bushes, rivers, or the like), it returns to them again, and redoubles its note, as it were to reproach them with their inactivity. At last the bird is observed to hover for a few moments over a certain spot, and then silently retiring to a neighbouring bush or resting-place, the hunters are sure of finding the bees nest in that identical spot; whether it be in a tree or in the crevice of a rock, or (as is most commonly the case) in the earth. Whilst the hunters are busy in taking the honey, the bird is

Cuculus.

Plate
CLIV.

Cuculus. seen looking on attentively to what is going forward, and waiting for its share of the spoil. The bee-hunters never fail to leave a small portion for their conductor; but commonly take care not to leave so much as would satisfy its hunger. The bird's appetite being whetted by this parsimony, it is obliged to commit a second treason, by discovering another bee's nest, in hopes of a better salary. It is further observed, that the nearer the bird approaches the hidden hive, the more frequently it repeats its call, and seems the more impatient. I have had frequent opportunities of seeing this bird, and have been witness to the destruction of several republics of bees by means of its treachery. I had, however, but two opportunities of shooting it, which I did to the great indignation of my Hottentots. It is about seven inches in length, and is of a rusty brown colour on the back, with a white breast and belly." A nest which was shown to Dr Sparrman for that of this bird, was composed of slender filaments of bark, woven together in the form of a bottle; the neck and opening hung downwards, and a string, in an arched shape, was suspended across the opening fastened by the two ends, perhaps for the bird to perch on.

4. The Cape Cuckow (*Buff.*), is a trifle smaller than ours: the bill a deep brown; the upper part of the body greenish brown: throat, cheeks, fore part of the neck, and upper wing coverts, of a deep rufous colour: tail feathers rufous, but paler, tipped with white: the breast, and all the under parts of the body, white, crossed with lines of black: the legs reddish brown. It inhabits the Cape of Good Hope; and is most likely the same bird which is called *Edolio*, from its pronouncing that word frequently in a low melancholy tone. Voyagers also mention another cuckow, which is common to Loango in Africa. It is bigger than ours, but of the same colour; and repeats the word *cuckow* like that bird, but in different inflexion of voice. It is said that the male and female together go through the whole eight notes of the gamut; the male, beginning by itself, sounds the three first, after which he is accompanied by the female through the rest of the octave.

5. The honoratus, or sacred cuckow, is somewhat less than our cuckow: the general colour is blackish ash on the upper parts, marked with two spots of white on each feather; beneath white, transversely spotted with ash colour: the quills are cinereous, transversely spotted with white: the tail is much cuneated, five inches and a half long, and of the same colour as the quills; the outer feather only three inches long: the legs and claws are of a pale ash-colour. This species inhabits Malabar, where the natives hold it sacred. It feeds on reptiles, which, perhaps, may be such as are the most noxious; if so, this seeming superstition may have rise from a more reasonable foundation than many others of the like sort.

6. The shining cuckow is the size of a small thrush: the bill is bluish: the upper part of the body green, with a rich gilded gloss; the under parts are white, transversely waved with green gold: the under tail coverts almost white; the quills and tail dusky brown; the legs are bluish. This inhabits New Zealand, where it is called *Poopo-arowro*. See plate CLI.

7. The vetula is a trifle bigger than a blackbird: the bill above an inch and a half long: the upper

mandible black; the lower whitish: crown of the head brown, the feathers of it soft and silky: the upper parts of the body and the quills cinereous olive: throat and fore part of the neck whitish; the rest of the under parts rufous: the tail is much cuneated; the two middle feathers cinereous olive, the others dusky black tipped with white; the outer feather very short: legs blue-black. This species inhabits Jamaica, where it is frequent in the woods and hedges all the year round. It feeds on seeds, small worms, and caterpillars, and is very tame. This bird has the name *tacco* from its cry, which is like that word; the first syllable of this is pronounced hardly, the other following in a full octave lower than the first. It has also another cry like *qua, qua, qua*; but that only when alarmed by an enemy. Besides insects, it will also eat lizards, small snakes, frogs, young rats, and sometimes even small birds. The snakes they swallow head foremost, letting the tail hang out of the mouth till the fore-parts are digested. This bird, it is most likely, might be easily tamed, as it is so gentle as to suffer the negro children to catch it with their hands. Its gait is that of leaping, like a magpie; being frequently seen on the ground; and its flight but short, chiefly from bush to bush. At the time when other birds breed, they likewise retire into the woods, but their nests have never yet been found; from which one should be inclined to think, that they were indebted to other birds for the rearing their young in the manner of the common cuckow. It has the name of *rain bird*, as it is said to make the greatest noise before rain. Common all the year at Jamaica. In another species or variety, common in Jamaica, the feathers on the throat appear like a downy beard, whence probably the name of *old-man rain bird*, given it there and by Ray, Sloane, &c.

8. The *nævius*, spotted cuckow, or rail-bird, is about the size of a field fare: the bill three quarters of an inch; the upper mandible black on the top, and rufous on the sides; the under wholly rufous: the general colour of the plumage is rufous in two shades; the under parts rufous white: the feathers on the crown are of a deep brown, and pretty long, with rufous tips, and some of them margined with rufous: the hind part of the neck is a rufous grey; down the shafts deep brown: back and rump the same; each feather tipped with a rufous spot: on each feather of the throat and neck is a transverse brownish line near the end: the under tail coverts are rufous; the quills are grey brown, edged with rufous, and a spot of the same at the tips: the tail is near six inches long, much cuneated; the outer feathers only half the length of the middle ones; colour of it the same as the quills; some of the upper coverts reach to near two-thirds of the length of the tail; the legs are ash-colour; the claws greyish brown. It inhabits Cayenne. Buffon mentions a variety of this by the name of *rail-bird*. It is much the same in size, but has less rufous, being grey in the place of that colour: the side tail feathers have white tips: the throat is pale grey; under the body white; the tail a trifle longer than in the other. Whether a variety or different sex is not known. This is common at Cayenne and Guiana; and is seen often perched upon gates and rails, whence its name; and when in this situation continually moves its tail. These are

Cucumber are not very wild birds, yet do not form themselves into troops, although numbers are often found in the same district: nor do they frequent the thick woods like many of the genus.

9. The cayanus, or Cayenne cuckow, is the size of a blackbird; the bill is grey brown, above an inch long, and a little bent at the tip: the plumage on the upper parts of the body is purplish chestnut; beneath, the same, but paler: the quills are the same as the upper parts, tipped with brown: the tail is the same; near the end black, and tipped with white; it is much emeated, and above ten inches long: the legs and claws are grey brown. This inhabits Cayenne, where it goes by the name of *piaye*, or *devil*. The natives give it that name as a bird of ill omen. The flesh they will not touch; and indeed not without reason, as it is very bad and lean. It is a very tame species, suffering itself to be almost touched by the hand before it offers to escape. Its flight is almost like that of a king's fisher; frequents the borders of rivers, on the low branches; feeds on insects; often wags its tail on changing place.

There are 37 other species, which inhabit different parts of the globe, and are principally distinguished by the shape of the tail and variations in colour.

CUCUMBER, in botany. See **CUCUMIS**.

CUCUMIS, the **CUCUMBER**: A genus of the syngenesia order, belonging to the monœcia class of plants; and in the natural method ranking under the 34th order, *Cucurbitacea*. The male calyx is quinque-dentated, the corolla quinquepartite; the filaments three. The female calyx is quinque-dentated, the corolla quinquepartite, the pistil trifid; the sides of the apple sharp-pointed. In this genus Linnæus includes also the **MELON**; (see that article). There are 11 species, of which the following are the most remarkable.

1. The *fativa*, or common cucumber, hath roots composed of numerous, long, slender, white fibres; long slender stalks, very branchy at their joints, trailing on the ground, or climbing by their clasps, adorned at every joint by large angular leaves on long erect footstalks, with numerous and monopetalous bell-shaped flowers of a yellow colour, succeeded by oblong rough fruit. The varieties of this kind are, (1.) The common rough green prickly cucumber; a middle-sized fruit, about six or seven inches long, having a dark-green rough rind, closely set with very small prickles; the plant is of the hardest sort, but does not show its fruit early. (2.) The short green prickly cucumber is about three or four inches long, the rind rather smooth, and set with small black prickles. It is valuable chiefly for being one of the earliest and hardiest sorts. (3.) The long green prickly cucumber, grows from six to nine inches in length, and is rather thinly set with prickles. And as there is an early and late cucumber, it is considerably the best variety for the main crops, both in the frames and hand-glass, as well as in the open ground for pricklers. Of this there is another variety with white fruit. (4.) The early green cluster cucumber is a shortish fruit, remarkable for growing in clusters, and appearing early. (5.) The long smooth green Turkey cucumber, is a smooth green-rinded fruit, growing from 10 to 15 inches in length, without prickles. The plants are strong growers, with very large leaves. (6.) The long smooth

white Turkey cucumber, is a smooth rinded fruit, from 10 to 15 inches long, without prickles. (7.) The large smooth green Roman cucumber is a very large and long smooth green fruit produced from a strong growing plant. (8.) The long white prickly Dutch cucumber, is a white fruit 8 or 10 inches long, set with small black prickles; the plants are but bad bearers in this country.

2. The *chata*, or round-leaved Egyptian cucumber. According to Mr Hasselquist, this grows in the fertile earth near Cairo after the inundation of the Nile, and not in any other place in Egypt, nor does it grow in any other soil. It ripens with the water-melons. The fruit is a little watery; the flesh almost of the same substance with the melons; it tastes somewhat sweet and cool; but is far from being as cool as the water-melons. This the grandees and Europeans in Egypt eat as the most pleasant fruit they find, and that from which they have the least to apprehend. It is the most excellent fruit of this tribe of any yet known.

The four first varieties of the *cucumisfativa* are those chiefly cultivated in this country. They are raised at three different seasons of the year: 1. on hot-beds, for early fruit; 2. under bell, or hand-glasses, for the middle crop; 3. on the common ground, which is for a late crop, or to pickle. The cucumbers which are ripe before April are unwholesome; being raised wholly by the heat of the dung without the assistance of the sun. Those raised in April are good, and are raised in the following manner.

Towards the latter end of January, a quantity of fresh horse-dung must be procured with the litter among it; and a small proportion of sea-coal ashes should be added to it. In four or five days the dung will begin to heat; at which time a little of it may be drawn flat on the out-side, and covered with two inches thickness of good earth: this must be covered with a bell-glass; and after two days, when the earth is warm, the seeds must be sown on it, covered with a quarter of an inch of fresh earth, and the glass then set on again. The glass must be covered with a mat at night, and in four days the young plants will appear. When these are seen, the rest of the dung must be made up into a bed for one or more lights. This must be three feet thick, beat close together, and covered three inches deep with fine fresh earth; the frame must then be put on, and covered at night, or in bad weather, with mats. When the earth is hot enough, the young plants from under the bell must be removed into it, and set two inches distance. The glasses must be now and then a little raised, to give air to the plants, and turned often, to prevent the wet from the steam of the dung from dropping down upon them. The plants must be watered at proper times; and the water used for this purpose must be set on the dung till it becomes as warm as the air in the frame: and as the young plants increase in bulk, they must be earthed up, which will give them great additional strength. If the bed is not hot enough, some fresh litter should be laid round its sides: and if too hot, some holes should be bored into several parts of it with a stake, which will let out the heat; and when the bed is thus brought to a proper coolness, the holes are to be stopped up again with fresh dung. When these plants begin to shoot their third or rough leaf,

Cucumis. leaf, another bed must be prepared for them like the first; and when it is properly warm through the earth, the plants of the other bed must be taken up, and planted in this, in which there must be a hole in the middle of each light, about a foot deep, and nine inches over, filled with light and fine fresh earth laid hollow in form of a basin: in each of these holes there must be set four plants: these must be, for two or three days, shaded from the sun, that they may take firm root; after which they must have all the sun they can, and now and then a little fresh air, as the weather will permit. When the plants are four or five inches high, they must be gently pegged down towards the earth, in directions as different from one another as may be; and the branches afterwards produced should be treated in the same manner. In a month after this the flowers will appear, and soon after the rudiments of the fruit. The glasses should now be carefully covered at night; and in the daytime the whole plants should be gently sprinkled with water. These will produce fruit till about midsummer; at which time the second crop will come in to supply their place: these are to be raised in the same manner as the early crop, only they do not require so much care and trouble. This second crop should be sown in the end of March or beginning of April. The season for sowing the cucumbers of the last crop, and for pickling, is towards the latter end of May, when the weather is settled: these are sown in holes dug to a little depth, and filled up with fine earth, so as to be left in the form of a basin; eight or nine seeds being put into one hole. These will come up in five or six days; and till they are a week old, are in great danger from the sparrows. After this they require only to be kept clear of weeds, and watered now and then. There should be only five plants left at first in each hole; and when they are grown a little farther up, the worst of these is to be pulled up, that there may finally remain only four. The plants of this crop will begin to produce fruit in July.

The cucumber is taken in great cities by the lower people as nourishment; but by the better sort is chiefly used as a refrigerant, or condiment, to accompany animal food. They have a bland insipid juice, without acidity or sweetness, approaching, as appears by their ripening, to a farinaceous matter. When used green they have no nourishment, so they are only to be used in the summer season and by the sedentary. Although cucumbers are neither sweet nor acid, yet they are considerably acescent, and so produce flatulency, cholera, diarrhoea, &c. Their coldness and flatulency may be likewise in part attributed to the firmness of their texture. They have been discharged with little change from the stomach, after being detained there for 48 hours. By this means, therefore, their acidity is greatly increased. Hence oil and pepper, the condiments commonly employed, are very useful to check their fermentation. We have lately used another condiment, viz. the skin, which is bitter, and may therefore supply the place of aromatics; but should only be used when young.

Besides the above mentioned species which are proper for the table, this genus affords also two articles for the materia medica.

1. The elaterium of the shops, is the inspissated *Cucumis*, *facula* of the juice of a kind of wild cucumber, called also the ass's cucumber. It comes to this country from Spain and the southern parts of France, where the plant is very common. It is brought to us in small flat whitish lumps or cakes that are dry, and break easily between the fingers. It is of an acrid, bitter and nauseous taste, and has a strong offensive smell when newly made: but these, as well as its other qualities, it loses after being kept some time. Elaterium is a very violent purge and vomit, and is now very seldom used. The plant is commonly called spirting cucumber, from its casting out its seeds with great violence, together with the viscid juice in which they are lodged, if touched when ripe; from this circumstance it has obtained the appellation of *noli me tangere*, or "touch me not."

2. The colocynthis, the colocynth, coloquintida, or bitter apple of the shops, is brought to us from Aleppo and the island of Crete. The leaves of the plant are large, placed alternate, almost round, and stand upon footstalks four inches long. The flowers are white; and are succeeded by a fruit of the gourd kind, of the size of a large apple, and which is yellow when ripe. The shelly or husky outside incloses a bitter pulp interspersed with flattish seeds. If a hole is made in one of these ripe gourds, and a glass of rum poured in, and suffered to remain 24 hours, it proves a powerful purgative. The pulp itself dried and powdered is commonly used as a purgative in this country, but is one of the most drastic and disagreeable we know. If taken in a large dose, it not only often brings away blood, but produces colics, convulsions, ulcers in the bowels, and fatal super purgations. The most effectual corrector of these virulent qualities is to triturate it finely with sugar or sweet almonds.

CUCURBIT, the name of a chemical vessel employed in distillation, when covered with its head. Its name comes from its lengthened shape, by which it resembles a gourd: some cucurbits, however, are shallow and wide-mouthed. They are made of copper, tin, glass, and stone ware, according to the nature of the substances to be distilled. A cucurbit, provided with its capital, constitutes the vessel for distillation called an *alembic*.

CUCURBITA, the Gourd, and POMPION: A genus of the syngenesia order, belonging to the monœcia class of plants; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. The calyx of the male is quinque-dentated; the corolla quinquefid; the filaments three. The calyx of the female is quinque-dentated; the corolla quinquefid; the pistil quinquefid; the seeds of the apple with a tumid margin. There are five species.

1. The lagenaria, or bottle gourd, rises with thick trailing downy stalks, branching into many spreading runners. These extend along the ground sometimes 15 or 20 feet in length. The leaves are large, roundish, heart shaped, indented, and woolly. The flowers are large and white, succeeded by long incurvated whitish yellow fruit, obtaining from about two to five or six feet in length, and from about nine to 24 inches in circumference, having a ligneous and durable shell.

2. The papo or pompion, commonly called pumpkin,

Cucurbita. kin, hath strong, trailing, rough stalks, branching into numerous runners. These are much larger than the former, extending from 10 to 40 or 50 feet each way. These are garnished with large, roundish, lobated, rough leaves, and yellow flowers. The flowers are succeeded by large, round, smooth fruit, of different forms and sizes; some as big as a peck, others as big as half a bushel measure; some considerably less, and others not exceeding the bulk of an orange; ripening to a yellow, and sometimes to a whitish colour. This species is the most hardy of any, as well as the most extensive in their growth. A single plant, if properly encouraged, will overspread 10 or 15 roods of ground, and produce a great number of fruit, which, when young, are generally a mixture between a deep blue and pale white, but change as they increase in bulk.

3. The verrucosa, or warted gourd, hath trailing stalks very branchy, and running upon the ground 10 or 15 feet each way; large lobated leaves, and yellow flowers, succeeded by roundish, knobby, warted white fruit, of moderate size.

4. The melopepo, erect gourd, or squash. This rises with an erect strong stalk several feet high, rarely sending forth side-runners, but becoming bushy upward. It is adorned with large lobated leaves; and the flowers are succeeded by depressed knotty fruit, both white and yellow, commonly of a moderate size.

5. The lignosa, ligneous shelled gourd, often called calabash. This hath trailing stalks, branching into runners, which extend far every way; the leaves are large, lobated, and rough; the flowers yellow, and are succeeded by roundish smooth fruit of a moderate size, with hard woody shells. Of all these species there are a great many varieties, and the fruit of every species is observed to be surprisingly apt to change its form.

Culture. All the species of gourds and pompions, with their respective varieties, are raised from seed sown annually in April or the beginning of May, either with or without the help of artificial heat. But the plants forwarded in a hot bed till about a month old, produce fruit a month or six weeks earlier on that account, and ripen proportionably sooner. The first species particularly will scarce ever produce tolerably sized fruit in this country, without the treatment above mentioned.

Uses. In this country these plants are cultivated only for curiosity; but in the places where they are natives, they answer many important purposes. In both the Indies, bottle-gourds are very commonly cultivated and sold in the markets. They make the principal food of the common people, particularly in the warm months of June, July, and August. The Arabians call this kind of gourd *charrah*. It grows commonly on the mountains in these deserts. The natives boil and season it with vinegar; and sometimes, filling the shell with rice and meat, make a kind of pudding of it. The hard shell is used for holding water, and some of them are capacious enough to contain 22 gallons; these, however, are very uncommon. The fruit of the pompion likewise constitutes a great part of the food of the common people during the hot months, in those places where they grow. If gathered when not much bigger than a hen or goose egg, and properly seasoned with butter, vinegar, &c.

they make a tolerable good sauce for butcher's meat, and are also used in soups. In England they are seldom used till grown to maturity. A hole is then made in one side, through which the pulp is scooped out; after being divested of the seeds, it is mixed with sliced apples, milk, sugar, and grated nutmeg, and thus a kind of pudding is made. The whole is then baked in the oven, and goes by the name of a *pumpkin-pye*. For this purpose the plants are cultivated in many places of England by the country people, who raise them upon old dung-hills. The third species is also used in North America for culinary purposes. The fruit is gathered when about half grown, boiled, and eaten as sauce to butcher's meat. The squashes are also treated in the same manner, and by some people esteemed delicate eating.

CUCURBITACEÆ, the name of the 34th order in Linnæus's fragments of a natural method, consisting of plants which resemble the gourd in external figure, habit, virtues, and sensible qualities. This order contains the following genera, viz. *gronovia*, *melothria*, *passiflora*, *anguria*, *bryonia*, *cucumis*, *cucurbita*, *fevillea*, *momordica*, *ficyos*, *trichosanthes*.

CUCURUCU, in zoology, the name of a serpent found in America, growing 10 or 12 feet long. It is also very thick in proportion to its length, and is of a yellowish colour, strongly variegated with black spots, which are irregularly mixed among the yellow, and often have spots of yellow within them. It is a very poisonous species, and greatly dreaded by the natives; but its flesh is a very rich food, and much esteemed among them, when properly prepared.

CUD, sometimes means the inside of the throat in beasts; but generally the food that they keep there, and chew over again. See *COMPARATIVE Anatomy*, n° 92—94.

CUD DALORE, a town on the coast of Coromandel in India, belonging to the English, very near the place where Fort St David once stood. N. Lat. 11. 30. E. Long. 79. 53. 30. This place was reduced by the French in the year 1781; and in 1783 underwent a severe siege by the British forces commanded by General Stuart. At this time it was become the principal place of arms held by the enemy on that coast: they had exerted themselves to the utmost in fortifying it; and it was garrisoned by a numerous body of the best forces of France, well provided with artillery, and every thing necessary for making a vigorous defence.

Previous to the commencement of the siege, they had constructed strong lines of defence all along the fort, excepting one place where the town was covered by a wood, supposed to be inaccessible. Through this wood, however, General Stuart began to cut his way; on which the besieged began to draw a line of fortification within that also. The British commander then determined to attack these fortifications before they were quite completed; and for this purpose a vigorous attack was made by the troops under General Bruce. The grenadiers assailed a redoubt which greatly annoyed them, but were obliged to retire; on which the whole army advanced to the attack of the lines. The French defended themselves with resolution; and as both parties charged each other with fixed bayonets, a dreadful slaughter ensued. At last the British were obliged

Cucurbitaceæ
||
Cuddalore.

Cuddalore obliged to retreat; but the French having imprudently come out of their lines to pursue them, were in their turn defeated, and obliged to give up the lines they had constructed with so much pains and so gallantly defended. The loss on the part of the British amounted to near 1000 killed and wounded, one half of whom were Europeans; and that of the French was not less than 600.

Though the British proved victorious in this contest, yet the victory cost so dear that there was not now a sufficient number to carry on the siege with any effect. The troops also became sickly; and their strength diminished so much, that the besieged formed a design of not only obliging them to raise the siege, but of totally destroying them. For this purpose 4000 men was landed from the squadron commanded by M. Suffrein; and the conduct of the enterprise committed to the chevalier de Damas, an experienced and valiant officer. On the 25th of June 1783, he sallied out at the head of the regiment of Aquitaine, supposed to be one of the best in the French service, and of which he was colonel; with other troops selected from the bravest of the garrison. The attack was made by day-break; but though the British were at first put into some disorder, they quickly recovered themselves, and not only repulsed the enemy, but pursued them so warmly, that the Chevalier de Damas himself was killed with about 200 of his countrymen, and as many taken prisoners.

This engagement was attended with one of the most remarkable circumstances that happened during the whole war, viz. A corps of Sepoy grenadiers encountering the French troops opposed to them with fixed bayonets, and overcoming them. This extraordinary bravery was not only noticed with due applause, but procured for that corps a provision for themselves and families from the presidencies to which they belonged. No other operation of any consequence took place during the siege, which was now soon ended by the news of peace having taken place between the belligerent powers of Europe.

CUDDY, in a first rate man of war, is a place lying between the captain lieutenant's cabin and the quarter-deck; and divided into partitions for the master and other officers. It denotes also a kind of cabin near the stern of a lighter or barge of burden.

CUDWEED, in botany. See **GNAPHALIUM**.

CUDWORTH (Ralph), a very learned divine of the church of England in the 17th century. In January 1657, he was one of the persons nominated by a committee of the parliament to be consulted about the English translation of the bible. In 1678 he published his *True Intellectual System of the Universe*; a work which met with great opposition. He likewise published a treatise, intitled, *Deus justificatus*: or, "The divine goodness of God vindicated, against the assertions of absolute and unconditionate reprobation." He embraced the mechanical or corpuscular philosophy: but with regard to the Deity, spirits, genii, and ideas, he followed the Platonists. He died at Cambridge in 1688. The editor of the new edition of the *Biographia Britannica* observes, that it is not easy to meet with a greater store house of ancient literature than the "*Intellectual System*;" and various writers, we believe, have been indebted to it for an appearance of

learning which they might not otherwise have been able to maintain. That Dr Cudworth was fanciful in some of his opinions, and that he was too devoted a follower of Plato and the Platonists, will scarcely be denied even by those who are most sensible of his general merit. The reflections that have been cast upon such a man as the author, by bigotted writers, are altogether contemptible. It is the lot of distinguished merit to be thus treated. Lord Shaftesbury, speaking on this subject, has given an honourable testimony to the memory of Dr Cudworth. "You know (says his lordship) the common fate of those who dare to appear fair authors. What was that pious and learned man's case, who wrote the *Intellectual System of the Universe*? I confess it was pleasant enough to consider, that though the whole world were no less satisfied with his capacity and learning, than with his sincerity in the cause of Deity; yet he was accused of giving the upper hand to the Atheist, for having only stated their reasons, and those of their adversaries, fairly together."

It is observed by Dr Birch, that Dr Cudworth's *Intellectual System of the Universe* has raised him a reputation, to which nothing can add but the publication of his other writings still extant in manuscript. That these writings are very valuable cannot be doubted. We may be assured that they display a great compass of sentiment and a great extent of learning. Nevertheless, from their voluminous quantity, from the abstruseness of the subjects they treat upon, and from the revolutions of literary taste and opinion, it is morally certain that the publication of them would not be successful in the present age. Mr Cudworth's daughter Damaris, who married Sir Francis Masham of Oates in Essex, was a lady of genius and learning: she had a great friendship for Mr Locke, who resided several years at her house at Oates, where he died in 1704.

CUE, an *item* or *inuendo*, given to the actors on the stage what or when to speak. See **PROMPTER**.

CUENZA, a town of Spain, in New Castile, and in the territory of the Sierra, with a bishop's see. It was taken by Lord Peterborough in 1706, but retaken by the Duke of Berwick. It is seated on the river Xucar, in W. Long. 1. 45. N. Lat. 40. 10.

CUERENHERT (Theodore Van), a very extraordinary person, was a native of Amsterdam, where he was born in 1522. It appears, that early in life he travelled into Spain and Portugal; but the motives of his journey are not ascertained. He was a man of science, and, according to report, a good poet. The sister arts at first he considered as an amusement only; but in the end he was, it seems, obliged to have recourse to engraving alone for his support. And though the different studies in which he employed his time prevented his attachment to this profession being so close as it ought to have been, yet at last the marks of genius are discoverable in his works. They are slight, and hastily executed with the graver alone; but in an open careless style, so as greatly to resemble designs made with a pen. He was established at Haarlem; and there pursuing his favourite studies in literature, he learned Latin, and was made secretary to that town, from whence he was sent several times as ambassador to the Prince of Orange, to whom he addressed a famous manifesto, which that prince published

Cudworth
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Cuere-
hert.

Cuerpo
Cuff.

in 1566. Had he stopped here, it had been well; but directing his thoughts into a different channel, he undertook an argument as dangerous as it was absurd. He maintained, that all religious communications were corrupted; and that, without a supernatural mission, accompanied with miracles, no person had a right to administer in any religious office: he therefore pronounced that man to be unworthy the name of a Christian who would enter any place of public worship. This he not only advanced in words, but strove to show the sincerity of his belief by practice; and for that reason would not communicate with either Protestant or Papist. His works were published in three volumes folio in 1630; and though he was several times imprisoned, and at last sentenced to banishment, yet he does not appear to have altered his sentiments. He died at Dergoude in 1590, aged 68 years. It is no small addition to the honour of this singular man, that he was the instructor of that justly celebrated artist Henry Goltzius. Curenbert worked jointly with the Galles and other artists, from the designs of Martin Hemskerck. The subjects are from the Old and New Testament, and consist chiefly of middling sized plates lengthwise. He also engraved several subjects from Franc. Floris.

CUERPO. To *walk in cuerpo*, is a Spanish phrase for going without a cloak; or without all the formalities of a full dress.

CUFF (Henry), the unfortunate secretary of the unfortunate earl of Essex, was born at Hinton St George in Somersetshire, about the year 1560, of a genteel family, who were possessed of considerable estates in that county. In 1576, he was entered of Trinity college Oxford, where he soon acquired considerable reputation as a Grecian and disputant. He obtained a fellowship in the above-mentioned college; but was afterwards expelled for speaking disrespectfully of the founder [A]. He was, however, soon after admitted of Merton college; of which, in 1586, he was elected probationer, and in 1588 fellow. In this year he took the degree of master of arts. Some time after he was elected Greek professor, and in 1594 proctor of the university. When he left Oxford is uncertain; nor are we better informed as to the means of his introduction to the earl of Essex. When that nobleman was made lord lieutenant of Ireland, Mr Cuff was appointed his secretary, and continued intimately connected with his lordship until his confinement in the tower; and he is generally supposed to have advised those violent measures which ended in their mutual destruction. The earl indeed confessed as much before his execution, and charged him to his face with being the author of all his misfortunes. Mr Cuff was tried for high-treason, convicted, and executed at Tyburn on the 30th of March 1601. Lord Bacon, Sir Henry Wotton, and Camden, speak of him in very harsh terms. He was certainly a man of

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learning and abilities. He wrote two books; the one entitled, *The Differences of the Ages of Man's Life*; the other, *De Rebus Gestis in Sancto Concilio Nicano*. The first was published after his death; the second is still in manuscript.

CUJAS (James), in Latin *Cujacius*, the best civilian of his time, was born at Toulouse, of obscure parents, in 1520. He learned polite literature and history; and acquired great knowledge in the ancient laws, which he taught with extraordinary reputation at Toulouse, Cahors, Bourges, and Valence in Dauphiné. Emmanuel Philibert, duke of Savoy, invited him to Turin, and gave him singular marks of his esteem. Cujas afterwards refused very advantageous offers from Pope Gregory XIII. who was desirous of having him teach at Bologna: but he chose rather to fix at Bourges, where he had a prodigious number of scholars; whom he not only took great pleasure in instructing, but assisted with his substance, which occasioned his being called the *Father of his Scholars*. He died at Bourges in 1590, aged 70. His works are in high esteem among civilians.

CUJAVIA, a territory of Great Poland, having on the north the duchy of Prussia, on the west the palatinate of Kalisk, and on the south those of Licici and Rava, and on the west that of Plocko. It contains two palatinates, the chief towns of which are Inowloez and Brest; as also Uladislav, the capital of the district.

CUIRASS, a piece of defensive armour, made of iron plate, well hammered, serving to cover the body, from the neck to the girdle, both before and behind. Some derive the word, by corruption, from the Italian *cuore*, "heart;" because it covers that part; others from the French *cuir*, or the Latin *corium*, "leather;" whence *coriaceus*: because defensive arms were originally made of leather. The cuirass was not brought into use till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

CUIRASSIERS, cavalry armed with cuirasses, as most of the Germans are: The French have a regiment of cuirassiers; but we have had none in the British army since the revolution.

CULDEES, in church-history, a sort of monkish priests formerly inhabiting Scotland and Ireland. Being remarkable for the religious exercises of preaching and praying, they were called, by way of eminence, *cultores Dei*; from whence is derived the word *culdees*. They made choice of one of their own fraternity to be their spiritual head, who was afterwards called the *Scots bishop*.

CULEMBACH, a district or marquisate of the circle of Franconia, in Germany. It is bounded on the west by the bishopric of Bamberg; on the south by the territory of Nuremberg; on the east by the palatinate of Bavaria and Bohemia; and on the north by Voigt-

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land

[A] The founder of Trinity College was Sir Thomas Pope, who, it seems, would often take a piece of plate from a friend's house, and carry it home concealed under his gown, out of fun, no doubt. Cuff, being merry with some of his acquaintance at another college, happened to say, alluding to Sir Thomas Pope's usual joke above-mentioned, "A pox on this beggarly house! why, our founder stole as much plate as would build such another." This piece of wit was the cause of his expulsion. The heads of colleges in those days did not understand humour. Anthony Wood was told this story by Dr Bathurst.

Cujas
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Culembach.

Culmbach, land and part of the circle of Upper Saxony. It is about 50 miles in length from north to south, and 30 in breadth from east to west. It is full of forests and high mountains; the most considerable of the latter are those of Frichtelberg, all of them covered with pine-trees. Here are the sources of four large rivers, the Maine, the Sala, the Eger, and the Nab. This marquisate is the upper part of the burgraviate of Nuremberg.

CULEMBACH, a town of Germany, in Franconia, the capital of the marquisate of the same name. It has good fortifications, and is seated at the confluence of two branches of the river Maine. It was pillaged and burnt by the Hussites in 1430, and by the inhabitants of Nuremberg in 1573. E. Long. 11. 28. N. Lat. 50. 12.

CULEUS, in Roman antiquity, the largest measure of capacity for things liquid, containing 20 amphoræ, or 40 urnæ. It contained 143 gallons 3 pints, English wine-measure, and was 11.095 solid inches.

CULEX, the GNAT: a genus of insects belonging to the order of diptera. The mouth is formed by a flexible sheath, inclosing bristles pointed like stings. Plate CLI. The antennæ of the males are filiform; those of the females feathered. There are seven species. These insects, too well known, by the severe punctures they inflict, and the itchings thence arising, afford a most interesting history. Before they turn to flying insects, they have been in some manner fishes, under two different forms. "You may observe in stagnate waters, from the beginning of May till winter, small grubs with their heads downwards, their hinder-parts on the surface of the water; from which part arises sideways a kind of vent-hole, or small hollow tube like a funnel, and this is the organ of respiration. The head is armed with hooks, that serve to seize on insects, and bits of grass on which it feeds. On the sides are placed four small fins, by the help of which the insect swims about, and dives to the bottom. These larvæ retain their form during a fortnight or three weeks, after which period they turn to chrysalids. All the parts of the winged insect are distinguishable through the outward robe that shrouds them. The chrysalids are rolled up into spirals. The situation and shape of the windpipe is then altered; it consists of two tubes near the head, which occupy the place of the stigmata, through which the winged insect is one day to breathe. These chrysalids, constantly on the surface of the water in order to draw breath, abstain now from eating; but upon the least motion are seen to unroll themselves, and plunge to the bottom, by means of little paddles situated at their hinder-part. After three or four days strict fasting, they pass to the state of gnats. A moment before, water was its element; but now, become an aerial insect, he can no longer exist in it. He swells his head, and bursts his inclosure. The robe he lately wore turns to a ship, of which the insect is the mast and sail. If at the instant the gnat displays his wings there arises a breeze, it proves to him a dreadful hurricane; the water gets into the ship, and the insect, who is not yet loosened from it, sinks and is lost. But in calm weather, the gnat forsakes his slough, dries himself, flies into the air, seeks to pump the alimentary juice of leaves, or the blood of men and beasts. The sting, which our naked eye discovers, is but a tube,

containing five or six spicula of exquisite minuteness; some dentated at their extremity like the head of an arrow, others sharp-edged like razors. These spicula, introduced into the veins, act as pump-suckers, into which the blood ascends by reason of the smallness of the capillary tubes. The insect injects a small quantity of liquor into the wound, by which the blood becomes more fluid, and is seen through the microscope passing through those spicula. The animal swells, grows red, and does not quit its hold till it has gorged itself. The liquor it has injected causes by its fermenting that disagreeable itching which we experience, and which may be removed by volatile alkali, or by scratching the part newly stung, and washing it with cold water; for later, the venom ferments, and you would only encrease the tumour and the itching. Rubbing one's self at night with fuller's earth and water, lessens the pain and inflammation. Gnats perform their copulation in the air. The female deposits her eggs on the water, by the help of her moveable hinder part and her legs, placing them one by the side of another in the form of a little boat. This vessel, composed of two or three hundred eggs, swims on the water for two or three days, after which they are hatched. If a storm arises, the boats are sunk. Every month there is a fresh progeny of these insects. Were they not devoured by swallows, other birds, and by several carnivorous insects, the air would be darkened by them."

Gnats in this country, however troublesome they may be, do not make us feel them so severely as the musketo-flies (*Culex pipiens*) do in foreign parts. In the day-time or at night these come into the houses; and when the people are gone to bed, they begin their disagreeable humming, approach always nearer to the bed, and at last suck up so much blood that they can hardly fly away. Their bite causes blisters in people of a delicate complexion. When the weather has been cool for some days, the musketoes disappear; but when it changes again, and especially after rain, they gather frequently in such quantities about the houses, that their number is astonishing. In sultry evenings they accompany the cattle in great swarms, from the woods to the houses or to town; and when they are driven before the houses, the gnats fly in wherever they can. In the greatest heat of summer, they are so numerous in some places, that the air seems to be quite full of them, especially near swamps and stagnate waters, such as the river Morris in New Jersey. The inhabitants therefore make a fire before their houses to expel these disagreeable guests by the smoke.

CULIACAN, a province of North America, in the audience of Guadalajara. It is bounded on the north by New Mexico, on the east by New Biscay and the Zacatecas, on the south by Chiametlan, and on the west by the sea. It is a fruitful country, and has rich mines.

CULLIAGE, a barbarous and immoral practice, whereby the lords of manors anciently assumed a right to the first night of their vassals brides.

CULLEN, a parliament-town in Scotland, situated on the sea-coast of Banff-shire. W. Long. 2. 12. and N. Lat. 57. 38.

CULLODEN, a place in Scotland within two miles of Inverness, chiefly remarkable for a complete victory

Culex
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Culloden.

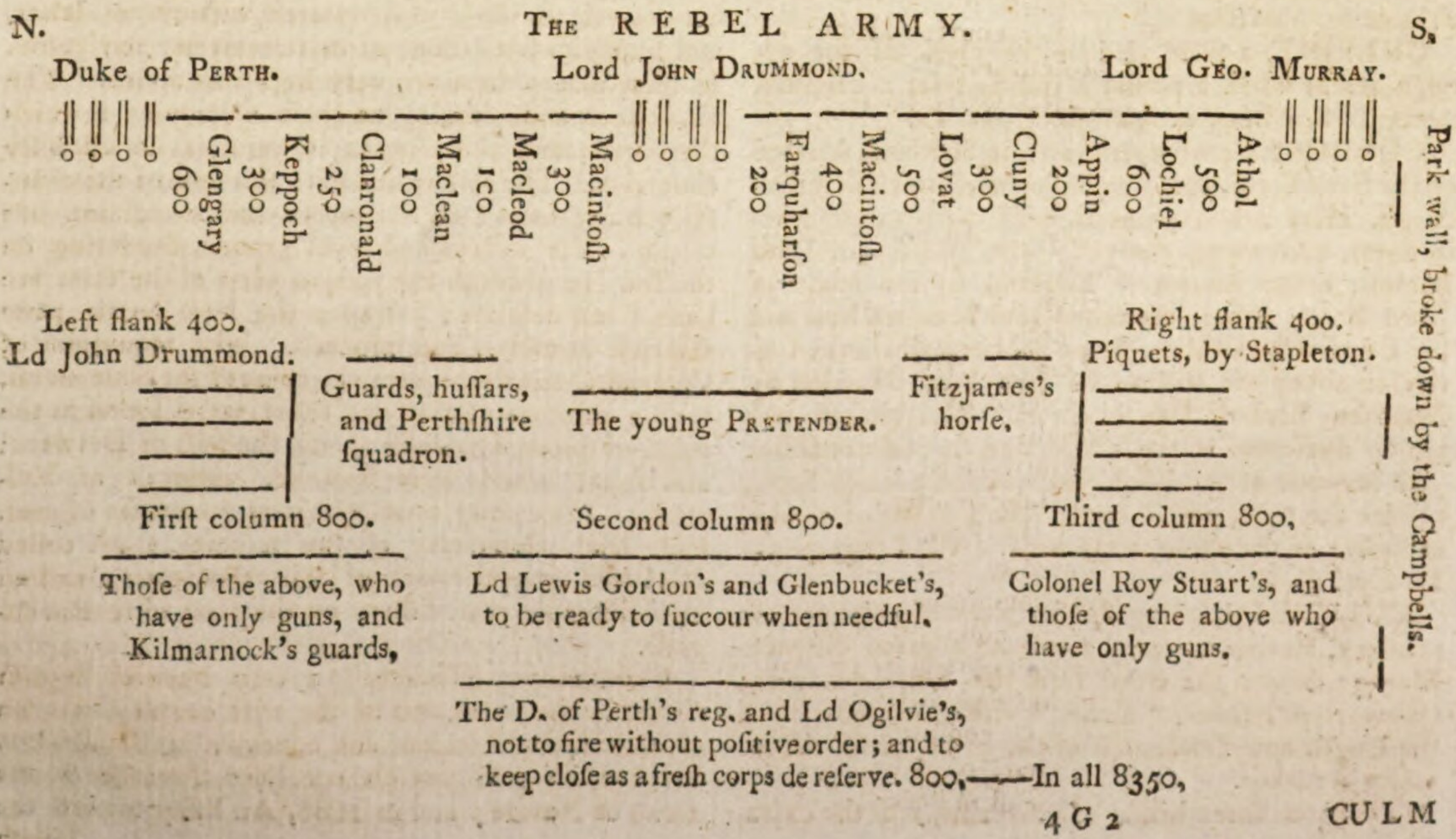
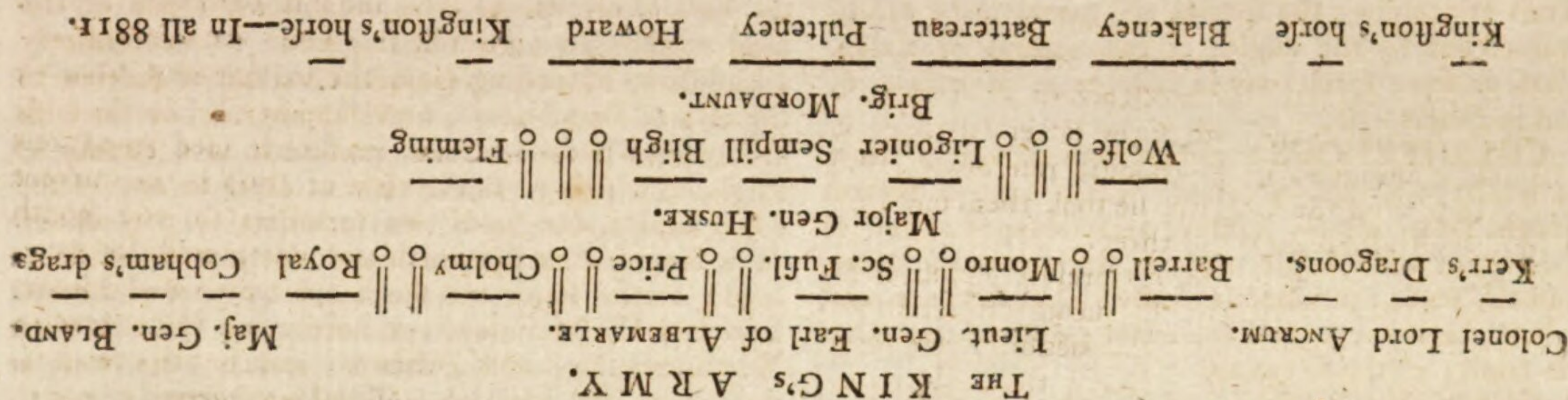
Culloden.

victory gained over the rebels on the 16th of April 1746. That day the royal army, commanded by the late Duke of Cumberland, began their march from Nairn, formed into five lines of three battalions each; headed by Major-general Huske on the left, Lord Sem-pill on the right, and Brigadier Mordaunt in the cen-ter; flanked by the horse under the Generals Hawley and Bland, who at the same time covered the cannon on the right and left. In this order they marched about eight miles, when a detachment of Kingston's horse, and of the Highlanders, having advanced before the rest of the army, discovered the van of the rebels commanded by the young Pretender. Both armies immediately formed in the order and numbers shown in the annexed scheme.

About two in the afternoon the rebels began to cannonade the King's army: but their artillery being ill served, did little execution; while the fire from their enemies was severely felt, and occasioned great disorder. The rebels then made a push at the right of the royal army, in order to draw the troops for-ward; but finding themselves disappointed, they turn-ed their whole force on the left; falling chiefly on Barrell's and Monro's regiments, where they attempt-ed to flank the king's front line. But this design also was defeated by the advancing of Wolfe's regi-

ment, while in the mean time the cannon kept play-ing upon them with cartridge-shot. General Hawley, with some Highlanders, had opened a passage through some stone walls to the right for the horse which ad-vanced on that side; while the horse on the king's right wheeled off upon their left, dispersed their bo-dy of reserve, and met in the center of their front-line in their rear; when being repulsed in the front, and great numbers of them cut off, the rebels fell in-to very great confusion. A dreadful carnage was made by the cavalry on their backs; however, some part of the foot still preserved their order: but King-ston's horse, from the reserve, galloped up briskly, and falling on the fugitives, did terrible execution. A total defeat instantly took place, with the loss of 2500 killed, wounded, and prisoners, on the part of the rebels, while the royalists lost not above 200. The young Pretender had his horse shot under him during the engagement; and after the battle retired to the house of a factor of Lord Lovat, about ten miles from Inverness, where he staid that night. Next day he set out for Fort-Augustus, from whence he pursued his journey through wild desarts with great difficulty and distress, till at last he safely reached France, as related under the article BRITAIN, N^o 423.

Culloden.



Culm
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Culverin.

CULM, or **CULMUS**, among botanists, a straw or haulm; defined by Linnæus to be the proper trunk of the grasses, which elevates the leaves, flower, and fruit.

This sort of trunk is tubular or hollow, and has frequently knots or joints distributed at proper distances through its whole length. The leaves are long, sleek, and placed either near the roots in great numbers, or proceed singly from the different joints of the stalk, which they embrace at the base, like a sheath or glove.

The haulm is commonly garnished with leaves; sometimes, however, it is naked; that is, devoid of leaves, as in a few species of cypress-grass. Most grasses have a round cylindrical stalk; in some species of *schoenus*, *scirpus*, cypress-grass, and others, it is triangular.

The stalk is sometimes entire, that is, has no branches; sometimes branching, as in *schoenus aculeatus* & *capensis*; and not seldom consists of a number of scales, which lie over each other like tiles.

Lastly, in a few grasses, the stalk is not interrupted with joints, as in the greater part. The space contained betwixt every two knots or joints, is termed by botanists *internodium*, and *articulus culmi*.

This species of trunk often affords certain marks of distinction in discriminating the species. Thus in the genus *ericaulon*, the species are scarce to be distinguished but by the angles of the culmus or stalks. These in some species are in number 5, in others 6, and in others 10.

CULMIFEROUS PLANTS, (from *culmus*, a straw or haulm): plants so called, which have a smooth jointed stalk, usually hollow, and wrapped about at each joint with single, narrow, sharp-pointed leaves, and the seeds contained in chaffy husks; such are oats, wheat, barley, rye, and the other plants of the natural family of the GRASSES.

CULMINATION, in astronomy, the passage of any heavenly body over the meridian, or its greatest altitude for that day.

CULPRIT, a term used by the clerk of the arraignments, when a person is indicted for a criminal matter. See *PLEA to Indictment*, par. 11.

CULROSS, a parliament town in Scotland, situated on the river Forth, about 23 miles north-west of Edinburgh. Here is a magnificent house with 13 windows in front, built about the year 1590 by Edward Lord Kinlois, better known in England by the name of Lord Bruce, slain in the noted duel between him and Sir Edward Sackville. Some poor remains of the Cistercian abbey are still to be seen here, founded by Malcolm Earl of Fife in 1217. The church was jointly dedicated to the Virgin and St Serf confessor. The revenue at the dissolution was 768 pounds Scots, besides the rents paid in kind. The number of monks, exclusive of the abbot, were nine. W. Long. 3. 34. N. Lat. 56. 8.

CULVERIN, a long slender piece of ordnance or artillery, serving to carry a ball to a great distance. Manège derives the word from the Latin *colubrina*; others from *coluber*, "snake;" either on account of the length and slenderness of the piece, or of the ravages it makes.

There are three kinds of culverins, viz. the extra-

ordinary, the ordinary, and the least sized. 1. The culverin extraordinary has $5\frac{1}{2}$ inches bore; its length 32 calibers, or 13 feet; weighs 4800 pounds; its load above 12 pounds; carries a shot $5\frac{1}{4}$ inches diameter, weighing 20 pounds weight. 2. The ordinary culverin is 12 feet long; carries a ball of 17 pounds 5 ounces; caliber $5\frac{1}{4}$ inches; its weight 4500 pounds. 3. The culverin of the least size, has its diameter 5 inches; is 12 feet long; weighing about 4000 pounds; carries a shot $3\frac{1}{4}$ inches diameter, weighing 14 pounds 9 ounces.

CULVERTAILED, among shipwrights, signifies the fastening or letting of one timber into another, so that they cannot slip out, as the corlings into the beams of a ship.

CUMA, or **CUMÆ** (anc. geog.), a town of Æolia in Asia Minor. The inhabitants have been accused of stupidity for not laying a tax upon all the goods which entered their harbour during 300 years. They were called *Cumani*.

CUMÆ, or **CUMA** (anc. geog.), a city of Campania near Puteoli, founded by a colony from Chalcis and Cumæ of Æolia before the Trojan war. The inhabitants were called *Cumæi*. One of the Sibyls fixed her residence in a cave in the neighbourhood, and was called the *Cumean Sibyl*.

CUMBERLAND, **CUMBRIA**, so denominated from the *Cumbri* or Britons who inhabited it; one of the most northerly counties in England. It was formerly a kingdom, extending from the vallum of Adrian to the city of Dumbritton, now Dumbarton, on the frith of Clyde in Scotland. At present it is a county of England, which gives the title of *Duke* to one of the royal family, and sends two members to parliament. It is bounded on the north and north-west by Scotland; on the south and south-east by part of Lancashire and Westmoreland; it borders on the east with Northumberland and Durham; and on the west is washed by the Irish sea. The length from north to south may amount to 55 miles, but the breadth does not exceed 40. It is well watered with rivers, lakes, and fountains; but none of its streams are navigable. In some places there are very high mountains. The air is keen and piercing on these mountains towards the north; and the climate is moist, as in all hilly countries. The soil varies with the face of the country; being barren on the moors and mountains, but fertile in the valleys and level ground bordering on the sea. In general, the eastern parts of the shire are barren and desolate; yet even the least fertile parts are rich in metals and minerals. The mountains of Copland abound with copper: veins of the same metal, with a mixture of gold and silver, were found in the reign of queen Elizabeth among the fells of Derwent; and royal mines were formerly wrought at Kewick. The county produces great quantities of coal, some lead, abundance of the mineral earth called *black-lead*, several mines of lapis calaminaris; and an inconsiderable pearl-fishery on the coast near Raven-glass.

CUMBERLAND (Richard), a very learned English divine in the latter end of the 17th century, was son of a citizen of London, and educated at Cambridge. In 1672, he published his excellent Treatise of the Laws of Nature; and in 1686, An Essay toward the Jewish

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Cumber-
land.

Cuminum ||
Cuniculus. Jewish Weights and Measures. After the revolution he was nominated by king William to the bishopric of Peterborough, without the least solicitation on his part. He pursued his studies to the last; and the world is obliged to him for clearing up several difficulties in history, chronology, and philosophy. After the age of 83, he applied himself to the study of the Coptic language, of which he made himself master. He was as remarkable for humility of mind, benevolence of temper, and innocence of life, as for his extensive learning. He died in 1718.

CUMINUM, CUMIN: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellatae*. The fruit is ovate and striated; there are four partial umbels, and the involucre are quadrifid. There is but one species, viz. the cuminum. It is an annual plant, perishing soon after the seed is ripe. It rises 9 or 10 inches high in the warm countries where it is cultivated; but seldom rises above four in this country. It has sometimes flowered very well here, but never brings its seeds to perfection. The leaves are divided into long narrow segments, like those of fennel, but much smaller: they are of a deep green, and generally turned backward at their extremity: the flowers grow in small umbels at the top of the stalks: they are composed of five unequal petals, of a pale bluish colour, which are succeeded by long, channelled, aromatic seeds. The plant is propagated for sale in the island of Malta. In this country the seeds must be sown in small pots, and plunged in a very moderate hot-bed to bring up the plants. These, after having been gradually inured to the open air, turned out of the pots, and planted in a warm border of good earth, preserving the balls of earth to their roots, will flower pretty well, and may perhaps even perfect a few seeds in warm seasons. These seeds have a bitterish warm taste, accompanied with an aromatic flavour, not of the most agreeable kind. They are accounted good carminatives; but not very often made use of. An essential oil of them is kept in the shops.

CUNÆUS (Peter), born in Zealand in 1586, was distinguished by his knowledge in the learned languages, and his skill in the Jewish antiquities. He also studied law, which he taught at Leyden in 1615; and read politics there till his death, in 1638. His principal work is a treatise, in Latin, on the republic of the Hebrews.

CUNEIFORM, in general, an appellation given to whatever resembles a wedge.

CUNEIFORM-Bone, in anatomy, the seventh bone of the cranium, called also *os basilare*, and *os sphenoides*. See **ANATOMY**, No. 16.

CUNEUS, in antiquity, a company of infantry drawn up in form of a wedge, the better to break through the enemy's ranks.

CUNICULUS, in Zoology. See **LEPUS**.

CUNICULUS, in mining, a term used by authors in distinction from *puteus*, to express the several sorts of passages and cuts in these subterranean works. The *cuniculi* are those direct passages in mines where they walk on horizontally; but the *putei* are the perpendicular cuts or descents. The miners in Germany call these by the name *Stollen*, and *Schachts*; the first word

expressing the horizontal, and the second the perpendicular cuts.

CUNILA, in botany: A genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the 42d order, *Verticillatae*. The corolla is ringent, with its upper lip erect and plain; there are two filaments, castrated, or wanting antheræ; the seeds are four. There are three species, none of which has any remarkable property.

CUNINA, in mythology, a goddess who had the care of little children.

CUNITZ (Mary), one of the greatest geniuses in the 17th century, was born in Silesia. She learned languages with amazing facility; and understood Polish, German, French, Italian, Latin, Greek, and Hebrew. She attained a knowledge of the sciences with equal ease: she was skilled in history, physic, poetry, painting, music, and playing upon instruments; and yet these were only an amusement. She more particularly applied herself to the mathematics, and especially to astronomy, which she made her principal study, and was ranked in the number of the most able astronomers of her time. Her Astronomical Tables acquired her a prodigious reputation: she printed them in Latin and German, and dedicated them to the emperor Ferdinand III. She married Elias de Lewin, M. D. and died at Pissehen in 1664.

CUNNINGHAM, one of the four bailiwicks in Scotland; and one of the three into which the shire of Air is subdivided. It lies north-east of Kyle. Its chief town is Irvine.

CUNNINGHAM (Alexander), author of a History of Great Britain from the revolution to the accession of George I. was born in the south of Scotland about the year 1654, in the regency of Oliver Cromwell. His father was minister at Ettrick, in the presbytery and shire of Selkirk. He was educated, as was the custom among the Scottish presbyterian gentlemen of those times, in Holland; where he imbibed his principles of government, and lived much with the English and Scots refugees at the Hague before the revolution, particularly with the earls of Argyle and Sunderland. He came over to England with the prince of Orange, and enjoyed the confidence and intimacy of many leading men among the whig party, that is, the friends and abettors of king William and the revolution. He was employed, at different times, in the character of a travelling companion or tutor; first, to the earl of Hyndford, and his brother Mr William Carmichael, solicitor general, in the reign of queen Anne, for Scotland; secondly, with the lord Lorne, afterwards so well known under the name of *John Duke of Argyle*; and thirdly, with the lord viscount Lonsdale. In his travels, we find him, at the German courts, in company with the celebrated Mr Joseph Addison, whose virtues he celebrates, and whose fortune, like that of our author, compelled him to

“ ——— become for hire,
“ A travelling tutor to a squire.”

Lord Lorne, at the time he was under the tuition of Mr Cunningham, though not seventeen years of age, was colonel of a regiment, which his father, the earl of

Cunila

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Cunning-
ham.

Cunning-
ham.

of Argyle had raised for his majesty's service in Flanders. Mr Cunningham's connection with the duke of Argyle, with whom he had the honour of maintaining an intimacy as long as he lived, together with the opportunities he enjoyed of learning, in his travels, what may be called *military geography*, naturally tended to qualify him for writing on military affairs.

Mr Cunningham, both when he travelled with the nobleman above-mentioned, and on other occasions, was employed by the English ministry in transmitting secret intelligence to them on the most important subjects. He was also, on sundry occasions, employed by the generals of the confederate armies, to carry intelligence, and to make representations to the court of Britain. In Carstares's State papers, published by Dr Macormick, principal of the united college of St Andrews, in 1774, there are two letters from our author, dated Paris the 22d and 26th of August 1701, giving an account of his conferences with the marquis de Torcy, the French minister, relative to the Scots trade with France. This commercial negotiation, from the tenor of Cunningham's letters compared with his history, appears to have been the only ostensible object of his attention: for he sent an exact account to king William, with whom he was personally acquainted, of the military preparations throughout all France.

Mr Cunningham's political friends, Argyle, Sunderland, Sir Robert Walpole, &c. on the accession of George I. sent him as British envoy to the republic of Venice. He arrived in that city in 1715; and continued there, in the character of resident, till the year 1720, when he returned again to London. He lived many years after, which he seems chiefly to have passed in a studious retirement. In 1735, he was visited in London by lord Hyndford, by the direction of his lordship's father, to whom he had been tutor, when he appeared to be very old. He seems to have lived about two years after; for the body of an Alexander Cunningham lies interred in the vicar chancel of St Martin's church, who died in the 83d year of his age, on the 15th day of May 1737; and who was probably the same person.

His "History of Great Britain, from the revolution in 1688 to the accession of George I." was published in two volumes 4to, in 1787. It was written by Mr Cunningham in Latin, but was translated into English by the reverend William Thomson, LL.D. The original manuscript came into the possession of the reverend Dr Hollingberry, archdeacon of Chichester, some of whose relations had been connected with the author. He communicated it to the earl of Hardwicke, and to the reverend Dr Douglas, now bishop of Carlisle, both of whom recommended the publication. In a short preface to the work, the archdeacon says, "My first design was to have produced it in the original; but knowing how few are sufficiently learned to understand, and how many are indisposed to read two quarto volumes in Latin, however interesting and entertaining the subject may be, I altered my purpose, and intended to have sent it into the world in a translation. A nervous fever depriving me of the power, defeated the scheme." But he afterwards transferred the undertaking to Dr Thomson; and Dr Hollingberry observes, that Dr Thomson "has expressed the

sense of the author with fidelity." The work was undoubtedly well deserving of publication. It contains the history of a very interesting period, written by a man who had a considerable degree of authentic information, and his book contains many curious particulars not to be found in other histories. His characters are often drawn with judgment and impartiality: at other times they are somewhat tinged with prejudice. This is particularly the case with respect to bishop Burnet, against whom he appears to have conceived a strong personal dislike. But he was manifestly a very attentive observer of the transactions of his own time; his work contains many just political remarks; and the facts which he relates are exhibited with great perspicuity, and often with much animation. Throughout his book he frequently intersperses some account of the literature, and of the most eminent persons of the age concerning which he writes; and he has also adorned his work with many allusions to the classics and to ancient history.

Alexander Cunningham, the author of the History of Great Britain, has been supposed to be the same person with Alexander Cunningham who published an edition of Horace at the Hague, in two volumes 8vo, in 1721, which is highly esteemed. But from the best information we have been able to collect, they were certainly different persons; though they were both of the same name, lived at the same time, had both been travelling tutors, were both said to have been eminent for their skill at the game of chess, and both lived to a very advanced age. The editor of Horace is generally said to have died in Holland, where he taught both the civil and canon laws, and where he had collected a very large library, which was sold in that country.

CUNNUS, in anatomy, the *pudendum muliebre*, or the anterior parts of the genitals of a woman, including the *labia pudendi* and *mons veneris*. See ANATOMY, No. 108.

CUNOCEPHALI, in mythology. (from *κυν*, "dog," and *κεφαλη*, "head,") a kind of baboons, or animals with heads like those of dogs, which were wonderfully endowed, and were preserved with great veneration by the Egyptians in many of their temples. It is related, that by their assistance the Egyptians found out the particular periods of the sun and moon; and that one half of the animal was often buried, while the other half survived; and that they could read and write. This strange history, Dr Bryant imagines, relates to the priests of Egypt, styled *caben*, to the novices in their temples, and to the examinations they were obliged to undergo, before they could be admitted to the priesthood. The Egyptian colleges were situated upon rocks or hills, called *caph*, and from their consecration to the sun, *caph-el*; whence the Greeks deduced *κεφαλη*, and from *caben-caph-el* they formed *κυν-κεφαλος*. So that *caben-caph-el* was some royal seminary in Upper Egypt, whence they drafted novices to supply their colleges and temples. By this etymology he explains the above history. The death of one part, while the other survived, denoted the regular succession of the Egyptian priesthood. The *cunocephali* are also found in India and other parts of the world. These and the *acephali* were thus denominated from their place of residence and from their worship.

Cunning-
ham.
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Cunoce-
phali.

Cunodontes.

||
Cupel.

CUNODONTES, a people mentioned by Solinus and Isidorus, and by them supposed to have the teeth of dogs. They were probably denominated, says Dr Bryant, from the object of their worship, the deity Chan-Adon, which the Greeks expressed *Kunodan*, and thence called his votaries *Cunodontes*.

CUNONIA, in botany; A genus of the digynia order, belonging to the decandria class of plants; and in the natural method ranking with those of which the order is doubtful. The corolla is pentapetalous; the calyx pentaphyllous; the capsule bilocular, acuminate, polyspermous; the styles longer than the flower.

CUOGOLO, in natural history, the name of a stone much used by the Venetians in glass-making, and found in the river Fesino. It is a small stone of an impure white, of a shattery texture, and is of the shape of a pebble.

CUP, a vessel of capacity of various forms and materials, chiefly to drink out of. In the Ephem. German. we have a description of a cup made of a common pepper-corn by Oswald Nerlinger, which holds 1200 other ivory cups, having each its several handle, all gilt on the edges; with room for 400 more.

CUP, in botany. See **CALYX**.

CUP-Galls, in natural history, a name given by authors to a very singular kind of galls, found on the leaves of the oak and some other trees. They are of the figure of a cup, or drinking-glass without its foot, being regular cones adhering by their point or apex to the leaf; and the top or broad part is hollowed a little way, so that it appears like a drinking-glass with a cover, which was made so small as not to close it at the mouth, but fall a little way into it. This cover is flat, and has in the center a very small protuberance, resembling the nipple of a woman's breast. This is of a pale green, as is also the whole of the gall, excepting only its rim that runs round the top: this is of a scarlet colour, and that very beautiful. Besides this species of gall, the oak leaves furnish us with several others, some of which are oblong, some round, and others flatted; these are of various sizes, and appear on the leaves at various seasons of the year. They all contain the worm of some small fly; and this creature passes all its changes in this its habitation, being sometimes found in the worm, sometimes in the nymph, and sometimes in the fly-state, in the cavity of it.

CUPANIA, in botany: A genus of the adelphia order, belonging to the monœcia class of plants; and in the natural method ranking under the 38th order, *Tricocca*. The calyx of the male is triphyllous; the corolla pentapetalous; the stamina five. The calyx of the female triphyllous; the corolla tripetalous; the style trifid: and a pair of seeds. There is but one species, a native of America, and which possesses no remarkable property.

CUPEL, in metallurgy, a small vessel which absorbs metallic bodies when changed by fire into a fluid scoria; but retains them as long as they continue in their metallic state. One of the most proper materials for making a vessel of this kind is the ashes of animal bones; there is scarcely any other substance which so strongly resists vehement fire, which so readily imbibes metallic scoriæ, and which is so little disposed to

be vitrified by them. In want of these, some make use of vegetable ashes, freed by boiling in water from their saline matter, which would cause them melt in the fire.

The bones, burnt to perfect whiteness, so as that no particle of coally or inflammable matter may remain in them, and well washed from filth, are ground into moderately fine powder; which, in order to its being formed into cupels, is moistened with just as much water as is sufficient to make it hold together when strongly pressed between the fingers; some direct glutinous liquids, as whites of eggs or gum-water, in order to give the powder a greater tenacity: but the inflammable matter, however small in quantity, which accompanies these fluids, and cannot be easily burnt out from the internal part of the mass, is apt to revive a part of the metallic scoria that has been absorbed, and to occasion the vessel to burst or crack. The cupel is formed in a brass ring, from three quarters of an inch to two inches diameter, and not quite so deep, placed upon some smooth support: the ring being filled with moistened powder, which is pressed close with the fingers; a round-faced pestle, called a *monk*, is struck down into it with a few blows of a mallet, by which the mass is made to cohere, and rendered sufficiently compact, and a shallow cavity formed in the middle: the figure of the cavity is nearly that of a sphere, that a small quantity of metal melted in it may run together into one bead. To make the cavity the smoother, a little of the same kind of ashes levigated into an impalpable powder, and not moistened, is commonly sprinkled on the surface, through a small fine sieve made for this purpose, and the monk again struck down upon it. The ring or mould is a little narrower at bottom than at top; so that by pressing it down on some of the dry powder spread upon a table, the cupel is loosened, and forced upwards a little; after which it is easily pushed out with the finger, and is then set to dry in a warm place free from dust.

CUPELLATION, the act of refining gold or silver by means of a cupel. For this purpose another vessel, called a *muffle*, is made use of, within which one or more cupels are placed. The muffle is placed upon a grate in a proper furnace, with its mouth facing the door, and as close to it as may be. The furnace being filled up with fuel, some lighted charcoal is thrown on the top, and what fuel is afterwards necessary is supplied through a door above. The cupels are set in the muffle; and being gradually heated by the successive kindling of the fuel, they are kept red-hot for some time, that the moisture which they strongly retain may be completely dissipated: for if any vapours should issue from them after the metal is put in, they would occasion it to sputter, and a part of it to be thrown off in little drops. In the sides of the muffle are some perpendicular slits, with a knob over the top of each, to prevent any small pieces of coals or ashes from falling in. The door, or some apertures made in it being kept open, for the inspection of the cupels, fresh air enters into the muffle, and passes off through these slits: by laying some burning charcoal on an iron plate before the door, the air is heated before its admission; and by removing the charcoal, or supply-

Cupel,
Cupella-
tion.

ing.

Cupella-
tion.

ing more, the heat in the cavity of the muffle may be somewhat diminished or increased more speedily than can be effected by suppressing or exciting the fire in the furnace on the outside of the muffle. The renewal of the air also is necessary for promoting the scorification of the lead.

The cupel being of a full red heat, the lead cast into a smooth bullet, that it may not scratch or injure the surface, is laid lightly in the cavity; it immediately melts; and then the gold or silver to be cupelled are cautiously introduced either by means of a small iron ladle, or by wrapping them in paper, and dropping them on the lead with a pair of tongs. The quantity of lead should be at least three or four times that of the fine metal: but when gold is very impure, it requires 10 or 12 times its quantity of lead for cupellation. It is reckoned that copper requires for its scorification about 10 times its weight of lead; that when copper and gold are mixed in equal quantities, the copper is so much defended by the gold, as not to be separable with less than 20 times its weight of lead; and that when copper is in very small proportion, as a 20th or 30th part of the gold or silver, upwards of 60 parts of lead are necessary for one of the copper. The cupel must always weigh at least half as much as the lead and copper; for otherwise it will not be sufficient for receiving half the scoria: there is little danger, however, of cupels being made too small for the quantity of a gold assay.

The mixture being brought into thin fusion, the heat is to be regulated according to the appearances; and in this consists the principal nicety in the operation. If a various coloured skin rises to the top, which liquifying, runs off to the sides, and is there absorbed by the cupel, visibly staining the parts it enters; if a fresh scoria continually succeeds, and is absorbed nearly as fast as it is formed, only a fine circle of it remaining round the edge of the metal; if the lead appears in gentle motion, and throws up a fume a little way from the surface; the fire is of the proper degree, and the process goes on successfully.

Such a fiery brightness of the cupel as prevents its colour from being distinguished, and the fumes of the lead rising up almost to the arch of the muffle, are marks of too strong a heat: though it must be observed, that the elevation of the fumes is not always in proportion to the degree of heat; for if the heat greatly exceeds the due limits, both the fumes and ebullition will entirely cease. In these circumstances the fire must necessarily be diminished: for while the lead boils and smokes vehemently, its fumes are apt to carry off some part of the gold; the cupel is liable to crack from the hasty absorption of the scoria, and part of the gold and silver is divided into globules, which lying discontinued on the cupel after the process is finished, cannot easily be collected; if there is no ebullition or fumes, the scorification does not appear to go on. Too weak a heat is known by the dull redness of the cupel; by the fume not rising from the surface of the lead; and the scoria like bright drops in languid motion, or accumulated, or growing consistent all over the metal. The form of the surface affords also an useful mark of the degree of heat; the stronger the fire, the more convex is the surface; and the weaker, the more flat; in this point, however, regard must be

N^o 96.

had to the quantity of metal; a large quantity being always flatter than a small one in an equal fire.

Towards the end of the process, the fire must be increased; for greatest part of the fusible metal lead being now worked off, the gold and silver will not continue melted in the heat that was sufficient before. As the last remains of the lead are separating, the rainbow colours on the surface become more vivid, and variously intersect one another with quick motions. Soon after, disappearing all at once, a sudden luminous brightness of the button of gold and silver shows the process to be finished. The cupel is then drawn forwards towards the mouth of the muffle; and the button, as soon as grown fully solid, taken out.

CUPELLING FURNACE. See *Cupelling* FURNACE.

CUPID, in Pagan mythology, the god of love. There seems to have been two Cupids; one the son of Jupiter and Venus, whose delight it was to raise sentiments of love and virtue; and the other the son of Mars and the same Goddess, who inspired base and impure desires. The first of these, called Eros, or true love, bore golden arrows, which caused real joy, and a virtuous affection; the other, called Anteros, had leaden arrows, that raised a passion founded only on desire, which ended in satiety and disgust. Cupid was always drawn with wings, to represent his inconstancy; and naked, to show that he has nothing of his own. He was painted blind, to denote that love sees no fault in the object beloved; and with a bow and quiver of arrows, to show his power over the mind. Sometimes he is placed between Hercules and Mercury, to show the prevalence of eloquence and valour in love; and at others is placed near Fortune, to signify that the success of lovers depends on that inconstant goddess. Sometimes he is represented with an helmet on his head and a spear on his shoulder, to signify that love disarms the fiercest men; he rides upon the backs of panthers and lions, and uses their manes for a bridle, to denote that love tames the most savage beasts. He is likewise pictured riding upon a dolphin, to signify that his empire extends over the sea no less than land.

CUPOLA, in architecture, a spherical vault, or the round top of the dome of a church, in the form of a cup inverted.

CUPPING, in surgery, the operation of applying cupping glasses for the discharge of blood and other humours by the skin. See SURGERY.

CUPRESSUS, the CYPRESS-TREE: A genus of the monadelphia order, belonging to the monœcia class of plants; and in the natural method ranking under the 51st order, *Coriferae*. The male calyx is a scale of the catkin; there is no corolla; the antheræ are four, sessile, and without filaments. The calyx of the female is a scale of the strobilus, and uniflorous; instead of styles there are hollow dots; the fruit is an angulated nut. There are six species; the most remarkable are the following: 1. The sempervirens, with an upright straight stem, closely branching all round, almost from the bottom upwards, into numerous quadrangular branches; rising in the different varieties from 15 to 40 or 50 feet in height, and very closely garnished with small, narrow, erect evergreen leaves, placed imbricatum; and flowers and fruit from the sides of the branches. 2. The thyoides,

Cupelling
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Cupressus.

Capressus, thyoides, or evergreen American cypress, commonly called white cedar, hath an upright stem branching out into numerous two-edged branches, rising 20 or 30 feet high, ornamented with flat evergreen leaves, imbricated like arbor vitæ, and small blue cones the size of juniper-berries. 3. The disticha, or deciduous American cypress, hath an erect trunk, retaining a large bulk, branching wide and regular; grows 50 or 60 feet high, fully garnished with small, spreading deciduous leaves, arranged distichous, or along two sides of the branches. All these species are raised from seeds, and will sometimes also grow from cuttings; but those raised from seeds prove the hardiest plants. The seeds are procured in their cones from the seedsmen, and by exposing them to a moderate heat, they readily open, and discharge the seeds freely. The season for sowing them is any time in March; and they grow freely on a bed or border of common light earth; especially the first and third species. The ground must then be dug, well broken, and raked smooth, then drawing an inch of earth evenly from off the surface into the alley, sow the seeds moderately thick, and directly sift the earth over them, half an inch deep. If in April and May the weather proves warm and dry, a very moderate watering will now and then be necessary, and the plants will rise in six or eight weeks. During the summer they must be kept clear from weeds, and in dry weather they must be gently watered twice a-week. In winter they must be occasionally sheltered with mats in the time of hard frost. In two years they will be fit for transplanting from the seed-bed, when they may be set in nursery rows two feet asunder; and in three or four years they will be fit for the shrubbery.

The wood of the first species is said to resist worms, moths, and putrefaction, and to last many centuries. The coffins in which the Athenians were wont to bury their heroes, were made, says Thucydides, of this wood; as were likewise the chests containing the Egyptian mummies. The doors of St Peter's church at Rome were originally of the same materials. These, after lasting upwards of 600 years, at the end of which they did not discover the smallest tendency to corruption were removed by order of pope Eugenius IV. and gates of brass substituted in their place. The same tree is by many eminent authors recommended as improving and meliorating the air by its balsamic and aromatic exhalations; upon which account many antient physicians of the eastern countries used to send their patients who were troubled with weak lungs to the island of Candia, where these trees grew in great abundance; and where, from the salubrious air alone, very few failed of a perfect cure. In the same island, says Miller, the cypress trees were so lucrative a commodity, that the plantations were called *dos filia*; the felling of one of them being reckoned a daughter's portion. Cypress, says Mr Pococke, is the only tree that grows towards the top of mount Lebanon, and being nipped by the cold, grows like a small oak. Noah's ark is commonly supposed to have been made of this kind of wood.

CUPRUM AMMONIACALE. See CHEMISTRY, No. 1934. This preparation is recommended in some kinds of spasmodic diseases, given in the dose of one or two grains.

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CUPRUM, or COPPER. See COPPER.

CURACOA, or CURASSOW, one of the larger Antilles islands, subject to the Dutch; situated in W. Long. 68. 30. N. Lat. 12. 30. This island is little else than a bare rock, about ten leagues long and five broad; lying three leagues off the coast of Venezuela. It has an excellent harbour, but the entrance is difficult. The basin is extremely large, and convenient in every respect; and is defended by a fort skilfully constructed, and always kept in repair. The reason of forming a settlement upon this barren spot, was to carry on a contraband trade with the Spanish colonies on the continent; but after some time the method of managing this trade was changed. Curassow itself became an immense magazine, to which the Spaniards resorted in their boats to exchange gold, silver, vanilla, cocoa, cochineal, bark, skins, and mules, for negroes, linen, silks, India stuffs, spices, laces, ribbands, quick-silver, steel, and iron-ware. These voyages, though continual, did not prevent a number of Dutch sloops from passing from Curassow to the continent. But the modern substitution of register-ships, instead of galleons, has made this communication less frequent; but it will be revived whenever, by the intervention of war, the communication with the Spanish Main shall be cut off. The disputes between the courts of London and Versailles also prove favourable to the trade of Curassow. At these times it furnishes provisions to the southern parts of St Domingo, and takes off all its produce. Even the French privateers, from the windward islands, repair in great numbers to Curassow, notwithstanding the distance. The reason is, that they find there all kinds of necessary stores for their vessels; and frequently Spanish, but always European goods, which are universally used. English privateers seldom cruise in these parts. Every commodity without exception, that is landed at Curassow, pays one *per cent.* port-duty. Dutch goods are never taxed higher: but those that are shipped from other European ports pay nine *per cent.* more. Foreign coffee is subject to the same tax, in order to promote the sale of that of Surinam. Every other production of America is subject only to a payment of three *per cent.* but with an express stipulation, that they are to be conveyed directly to some port belonging to the republic.

CURATE, the lowest degree in the church of England; he who represents the incumbent of a church, parson or vicar, and officiates divine service in his stead: and in case of pluralities of livings, or where a clergyman is old and infirm, it is requisite there should be a curate to perform the cure of the church. He is to be licensed, and admitted by the bishop of the diocese, or by an ordinary having episcopal jurisdiction; and when a curate hath the approbation of the bishop, he usually appoints the salary too; and in such case, if he be not paid, the curate hath a proper remedy in the ecclesiastical court, by a sequestration of the profits of the benefice; but if the curate is not licensed by the bishop, he is put to his remedy at common law, where he must prove the agreement, &c. A curate having no fixed estate in his curacy, not being instituted and inducted, may be removed at pleasure by the bishop or incumbent. But there are perpetual curates as well as temporary, who are appointed where tithes are impropriate, and no vicarage endowed; these are not

Cuprum
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Curate.

Curatella
||
Curculio.

removeable, and the proprietors are obliged to find them; some whereof have certain portions of the tithes settled on them. Every clergyman that officiates in a church (whether incumbent or substitute) in the liturgy is called a *curate*. Curates must subscribe the declaration according to the act of uniformity, or are liable to imprisonment, &c.

CURATELLA, in botany: A genus of the digynia order, belonging to the polyandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is pentaphyllous; the petals four; the styles two; the capsule bipartite, with the cells dispermous.

CURATOR, among the Romans, an officer under the emperors, who regulated the price of all kinds of merchandize and vendible commodities in the cities of the empire. They had likewise the superintendence of the customs and tributes; whence also they were called *logistæ*.

CURATOR, among civilians, a trustee or person nominated to take care of the affairs and interests of a person emancipated or interdicted. In countries where the Roman law prevails, between the age of 14 and 24 years, minors have curators assigned them; till 14, they have tutors.

CURATOR of an University, in the United Provinces, is an elective office, to which belongs the direction of the affairs of the university; as, the administration of the revenues, the inspection of the professors, &c. The curators are chosen by the states of each province: The university of Leyden has three; the burghermasters of the city have a fourth.

CURB, in the manege, a chain of iron made fast to the upper part of the branches of the bridle in a hole called the *eye*, and running over the horse's beard. It consists of these three parts; the hook, fixed to the eye of the branch; the chain of SS's or links; and the two rings, or mailles. Large curbs, provided they be round, are always most gentle: but care is to be taken, that it rest in its proper place, a little above the beard, otherwise the bit-mouth will not have the effect that may be expected from it.

English watering bits have no curbs; the Turkish bits, called *genettes*, have a ring that serves instead of a curb. See **GENETTES**.

CURB, in farriery, is a hard and callous swelling on the hind part of the hock, attended with stiffness, and sometimes with pain and lameness. See **SPAVIN**.

CURCAS, a name given in Egypt to an esculent root, approaching to the taste and virtues of the colocasia. It is also a name used in Malabar for a small fruit of the shape and size of an hazel nut. Both these things have the credit of being strong provocatives; and it is very probable that the curcas of the East Indies may be the fruit called *bel* by Avicenna, and said to possess the same virtues. Garcias has been led into a very great error by this similarity of names and virtues; and supposes the curcas of Egypt the same with that of the East Indies.

Plate CLI. **CURCULIO**, in zoology, a genus of insects belonging to the order of coleoptera. The feelers are subclavated, and rest upon the snout, which is prominent, and horny. These insects are divided into the following families. 1. Those which have the rostrum longer than the thorax, and whose thighs are simple.

2 Those which have the rostrum longer than the thorax, and the thighs thicker and made for leaping.

3. Those which have the rostrum longer than the thorax, and the thighs dentated. 4. Those which have dentated thighs, and a rostrum shorter than the thorax.

5. Those whose thighs are without teeth or spines, and the rostrum shorter than the thorax. There are no less than 95 species, principally distinguished by their colour.

The larvæ of the curculiones differ not from those of most coleopterous insects. They bear a resemblance to oblong soft worms. They are provided anteriorly with six scaly legs, and their head is likewise scaly. But the places where those larvæ dwell, and their transformations, afford some singularities. Some species of them, that are dreaded for the mischief they do in granaries, find means to introduce themselves, while yet small, into grains of corn, and there make their abode. It is very difficult to discover them, as they lie concealed within the grain. There they grow at leisure,

enlarging their dwelling-place as they grow, at the expence of the interior meal of the grain on which they feed. Corn lofts are often laid waste by these insects, whose numbers are sometimes so great as to devour and destroy all the corn. When the insect, after having eat up the meal, is come to its full size, it remains within the grain, hidden under the empty husk, which subsists alone; and there transformed, it becomes a chrysalis, nor does it leave it till a perfect insect, making its way through the husk of the grain. It is no easy matter to discover by the eye the grains of corn thus attacked and hollowed out by these insects, as they outwardly appear large and full: but the condition the curculio has reduced them to, renders them much lighter; and if you throw corn infested by these insects into water, all the tainted grains will swim, and the rest sink to the bottom. Other larvæ of curculiones are not so fond of corn, but fix in the same manner on several other seeds. Beans, pease, and lentils, that are preserved dry, are liable to be spoiled by these little animals, which prey upon the inward part of the grain, where they have taken up their habitation, and do not come forth till they have completed their transformation, by breaking through the outward husk of the grain: this is discoverable by casting those grains into water; those that swim are generally perforated by the curculiones. Other species are lodged in the inside of plants. The heads of artichokes and thistles are often bored through and eaten away by the larvæ of large curculiones. Another species smaller, but singular, pierces and inwardly consumes the leaves of elms. It frequently happens that almost all the leaves of an elm appear yellow, and as it were dead towards one of their edges, while the whole remainder of the leaf is green. Upon inspecting those leaves, the dead part appears to form a kind of bag or small bladder. The two laminæ or outward pellicles of the leaf, as well above as below, are entire, but distant and separated from each other, whilst the parenchyma that lies between them has been consumed by several small larvæ of the curculio, that have made themselves that dwelling, in which they may be met with. After their transformation they come forth, by piercing the kind of bladder, and give being to a curculio that is brown, small, and hard to catch, by

Curculio.

Barbut on
Insects.

reason

Curcuma
||
Curetes.

reason of the nimbleness with which it leaps, The property of leaping, allotted to this single species, depends on the shape and length of its hinder legs.

CURCUMA, TURMERIC: A genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the eighth order, *Scitamineæ*. It has four barren stamina, with a fifth fertile. The species are,

1. The rotunda, with a round root, hath a fleshy-jointed root like that of ginger, but round; which sends up several spear-shaped oval leaves, which rise upwards of a foot high, and of a sea-green colour. From between these arises the flower-stalks, supporting a loose spike of flowers of a pale-yellowish colour, inclosed in several different spathæ, or sheaths, which drop off. The flowers are never succeeded by seeds in this country. 2. The longa, hath long fleshy roots of a deep yellow colour, which spread under the surface of the ground like those of ginger; they are about the thickness of a man's finger, having many round knotty circles, from which arise four or five large spear-shaped leaves, standing upon long foot-stalks. The flowers grow in loose scaly spikes on the top of the foot-stalks, which rise from the larger knobs of the roots, and grow about a foot high; they are of a yellowish red colour, and shaped somewhat like those of the Indian reed.

These plants grow naturally in India, from whence the roots are brought to Europe for use. They are very tender; so will not live in this country unless kept constantly in a stove. They are propagated by parting the roots. The root communicates a beautiful but perishable yellow dye, with alum, to woollen, cotton, or linen. In medicine it is esteemed aperient, and emmenagogic; and of singular efficacy in the jaundice.

CURDISTAN, a country of Asia, seated between the Turkish empire and Persia, lying along the eastern coast of the river Tigris, and comprehends great part of the ancient Assyria. Some of the inhabitants live in towns and villages, and others rove from place to place, having tents like the wild Arabs, and are also robbers like them. Their religion is partly Christian, and partly Mahometanism; but they are very loose in regard to either.

CURDLING, the coagulating or fixing of any fluid body; particularly milk. See the article CHEESE.

Pausanias says, that Aristæus son of Apollo, and Cyrene, daughter of the river Peneus, were the first who found the secret of curdling milk.

At Florence they curdle their milk for the making of cheese with artichoke flowers, in lieu of the rennet used for the same purpose among us.

The Bisaltæ, a people of Macedonia, Rochfort observes, live wholly upon curdled milk, *i. e.* on curds. He adds, that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

CURETES, in antiquity, a sort of priests or people of the isle of Crete, called also *Corybantes*. See CORYBANTES and CRETE. The Curetes are said to have been originally of mount Ida in Phrygia; for which reason they were also called *Idæi Dactyli*. See DACTYLI.

Curetes
||
Curia.

Lucian and Diodorus Siculus represent them as very expert in casting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furnishing them with tabors and castanets: and relate, that they used to dance much to the noise and clashing thereof. By this noise, it is said, they prevented Saturn from hearing the cries of young Jupiter, whereby he was saved from being destroyed.

Some authors, however, give a different account of the Curetes. According to Pezron and others, the Curetes were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, what the druids were afterwards among the Gauls, &c. *i. e.* they were priests who had the care of what related to religion and the worship of the gods. Hence, as in those days it was supposed there was no communication with the gods but by divinations, auguries, and the operations of magic; the Curetes passed for magicians and enchanters: to these they added the study of the stars, of nature, and poesy; and so were philosophers, astronomers, &c.

Vossius, *de Idolat.* distinguishes three kinds of Curetes; those of Ætolia, those of Phrygia, and those of Crete, who were originally derived from the Phrygians. The first, he says, took their name from *κῦρος*, *tonsure*; in regard, from the time of a combat wherein the enemy seized their long hair, they always kept it cut. Those of Phrygia and Crete, he supposes were so called from *κῦρος*, *young man*, in regard they were young, or because they nursed Jupiter when he was young.

CURFEW, or COURFEW, a signal given in cities taken in war, &c. to the inhabitants to go to bed. Pasquin says, it was so called, as being intended to advertise the people to secure themselves from the robberies and debaucheries of the night.

The most eminent curfew in England was that established by William the Conqueror, who appointed, under severe penalties, that, at the ringing of a bell at eight o'clock in the evening, every one should put out their lights and fires and go to bed: whence to this day, a bell rung about that time is called a *curfew-bell*.

CURIA, in Roman antiquity, was used for the senate-house. There were several curiæ in Rome; as the *curia calabra*, said to be built by Romulus; the *curia hostilia*, by Tullus Hostilius; and the *curia pompeia*, by Pompey the Great.

CURIA also denoted the places where the curiæ used to assemble. Each of the 30 curiæ of old Rome had a temple or chapel assigned to them for the common performance of their sacrifices, and other offices of their religion; so that they were not unlike our parishes. Some remains of these little temples seem to have subsisted many ages after on the Palatine-hill, where Romulus first built the city, and always resided.

CURIA, among the Romans, also denoted a portion, or division of a tribe. In the time of Romulus, a tribe consisted of ten curiæ, or a thousand men; each curia being one hundred. That legislator made the first division of his people into thirty curiæ. Afterwards, *curia* or *domus curialis*, because used for the place where each curia held its assemblies. Hence also curia passed to the senate-house; and it is from hence

Curia the moderns came to use the word *curia*, "court," for a place of justice, and for the judges, &c. there assembled.

Varro derives the word from *cura*, "care," *q. d.* an assembly of people charged with the care of public affairs. Others deduce it from the Greeks; maintaining, that at Athens they called *κῦρια* the place where the magistrate held his assizes, and the people used to assemble: *κῦρια*, again, may come from *κῦρος*, *authority*, *power*; because it was here the laws were made.

CURIA, in our ancient customs.—It was usual for the kings of England to summon the bishops, peers, and great men of the kingdom, to some particular place, at the chief festivals in the year; and this assembly is called by our historians *curia*; because there they consulted about the weighty affairs of the nation; whence it was sometimes also called *solemnis curia*, *generalis curia*, *augustalis curia*, and *curia publica*; &c. See WITENA-MOT.

CURIA Baronum. See COURT-Baron.

CURIA Claudenda, is a writ that lies against him who should fence and inclose the ground, but refuses or defers to do it.

CURIATII, three brothers of Alba, maintained the interest of their country against the Romans, who had declared war against those of Alba. The two armies being equal, three brothers on each side were chosen to decide the contest: the Curiatii by those of Alba, and the Horatii by the Romans. The three first were wounded, and two of the latter killed: but the third joining policy to valour, ran away; and having thus tired the Curiatii, he took them one after another, and killed them all three.

CURING, a term used for the preserving fish, flesh, and other animal substances, by means of certain additions of things, to prevent putrefaction. One great method of doing this, is by smoking the bodies with the smoke of wood, or rubbing them with salt, nitre, &c.

CURIO, the chief and priest of a curia.—Romulus, upon dividing the people into curiae, gave each division a chief, who was to be priest of that curia, under the title of *curio* and *flamen curialis*. His business was to provide and officiate at the sacrifices of the curia, which were called *curionia*; the curiafurnishing him with a sum of money on that consideration, which pension or appointment was called *curionium*. Each division had the election of its curia; but all these particular curios were under the direction of a superior or general, called *curio maximus*, who was the head of the body, and elected by all the curios assembled in the comitia curialis.

All these institutions were introduced by Romulus, and confirmed by Numa, as Halicarnassensis relates it.

CURIOSUS, an officer of the Roman empire during the middle age, appointed to take care that no frauds and irregularities were committed; particularly no abuses in what related to the posts, the roads, &c. and to give intelligence to the court of what passed in the provinces. This made the curiosi people of importance, and put them in a condition of doing more harm than they prevented; on which account, Honorius cashiered them, at least in some parts of the empire, anno 415.

The curiosi came pretty near to what we call con-

trollers. They had their name from *cura*, "care;" *quod curis agendis & electionibus cursus publici inspicendis operam darent.*

CURLEW, in ornithology. See SCOLOPAX.

CURMI, a name given by the antients to a sort of malt liquor or ale. It was made of barley, and was drunk by the people of many nations instead of wine, according to Dioscorides's account. He accuses it of causing pains in the head, generating bad juices, and disordering the nervous system. He also says, that in the western part of Iberia, and in Britain, such a sort of liquor was in his time prepared from wheat instead of barley. See ALE.

CURNOCK, a measure of corn containing four bushels, or half a quarter.

CURRANS, or CURRANTS, the fruit of a species of grossularia. See GROSSULARIA.

The white and red sort are mostly used; for the black, and chiefly the leaves, upon first coming out, are in use to flavour English spirits, and counterfeit French brandy. Currants greatly assuage drought, cool and fortify the stomach, and help digestion; and the jelly of black currants is said to be very efficacious in curing inflammations of the throat.

CURRANTS also signify a smaller kind of grapes, brought principally from Zante and Cephalonia. They are gathered off the bushes, and laid to dry in the sun, and so put up in large butts. They are opening and pectoral; but are more used in the kitchen than in medicine.

CURRENT, or CURRANT, a term used to express the present time. Thus the year 1792 is the current year, the 20th current is the 20th day of the month now running.—With regard to commerce, the price current of any merchandise is the known and ordinary price accustomed to be given for it. The term is also used for any thing that has course or is received in commerce; in which sense we say, *current coin*, &c.

CURRENT, in navigation, a certain progressive movement of the water of the sea, by which all bodies floating therein are compelled to alter their course or velocity, or both, and submit to the laws imposed on them by the current.

In the sea, currents are either natural and general, as arising from the diurnal rotation of the earth about its axis; or accidental and particular, caused by the waters being driven against promontories, or into gulphs and straits, where, wanting room to spread, they are driven back, and thus disturb the ordinary flux of the sea. Currents are various, and directed towards different parts of the ocean, of which some are constant, others periodical. The most extraordinary current of the sea, is that by which part of the Atlantic or African Ocean moves about Guinea from Cape Verd towards the curvature or bay of Africa, which they call *Fernando Poo*; viz. from west to east, contrary to the general motion: And such is the force of the current, that when ships approach too near the shore, it carries them violently towards that bay, and deceives the mariners in their reckoning. There is a great variety of shifting currents, which do not last, but return at certain periods; and these do, most of them, depend upon and follow the anniversary winds or monsoons, which by blowing in one place may cause a current in another. Varenus informs us, that at

Curlew
||
Current.

Java,

Current. Java, in the straits of Sunda, when the monsoons blow from the west, viz. in the month of May, the currents set to the eastward, contrary to the general motion. Between the island of Celebes and Madura, when the western monsoons set in, viz. in December, January, and February, or when the winds blow from the north-west, or between the north and west, the currents set to the south-east, or between the south and east. At Ceylon, from the middle of March to October, the currents set to the southward, and in the other parts of the year to the northward; because at this time the southern monsoons blow, and at the other the northern. Between Cochin-China and Malacca, when the western monsoons blow, viz. from April to August, the currents set eastward against the general motion; but the rest of the year they set westward, the monsoon conspiring with the general motion. They run so strongly in these seas, that unexperienced sailors mistake them for waves that beat upon the rocks, known usually by the name of *breakers*. So for some months after the 15th of February, the currents set from the Maldives towards India on the east, against the general motion of the sea. On the shore of China and Cambodia, in the months of October, November, and December, the currents set to the north-west, and from January to the south-west, when they run with such rapidity about the shoals of Parcel, that they seem swifter than an arrow. At Pulo Condore, upon the coast of Cambodia, though the monsoons are shifting, yet the currents set strongly towards the east, even when they blow to a contrary point. Along the coasts of the Bay of Bengal, as far as the Cape Romania, at the extreme point of Malacca, the current runs southward in November and December. When the monsoons blow from China to Malacca, the sea runs swiftly from Pulo Cambi to Pulo Condore on the coast of Cambodia. In the Bay of Sans Bras, not far from the Cape of Good Hope, there is a current particularly remarkable, where the seas runs from east to west to the landward; and this more vehemently, as it is opposed by winds from a contrary direction. The cause is undoubtedly owing to some adjacent shore which is higher than this. In the straits of Gibraltar, the currents almost constantly drive to the eastward, and carry ships into the Mediterranean: they are also found to drive the same way into St George's channel.

The setting or progressive motion of the current may be either quite down to the bottom, or to a certain determinate depth. As the knowledge of the direction and velocity of currents is a very material article in navigation, it is highly necessary to discover both, in order to ascertain the ship's situation and course with as much accuracy as possible. The most successful method which has been hitherto practised by mariners for this purpose, is as follows: A common iron pot, which may contain four or five gallons, is suspended by a small rope fastened to its ears or handles, so as to hang directly upright, as when placed upon the fire. This rope, which may be from 70 to 100 fathoms in length, being prepared for the experiment, is coiled in the boat, which is hoisted out of the ship at a proper opportunity, when there is little or no wind to ruffle the surface of the sea. The pot being then thrown overboard into the water, and

immediately sinking, the line is slackened till about 70 or 80 fathoms of the line is run out; after which the line is fastened to the boat's stern, by which she is accordingly restrained and rides as at an anchor. The velocity of the current is then easily tried by the log and half-minute glass, the usual method of discovering the rate of a ship's sailing at sea. The course of the stream is next obtained by the compass provided for this operation. Having thus found the setting and drift of the current, it next remains to apply this experiment to the purposes of NAVIGATION; for which see that article.

Under-CURRENTS are distinct from the upper or apparent, and in different places set or drive a contrary way. Dr Smith makes it highly probable, that in the Downs, in the straits of Gibraltar, &c. there is an under-current, whereby as much water is carried out as is brought in by the upper currents. This he argues from the offing between the north and south Foreland, where it runs tide and half-tide, i. e. it is ebb or flood in that part of the Downs three hours before it is so off at sea: a certain sign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, i. e. close by the ground; and so at the tide of ebb it will flow under-foot. This he confirms by an experiment in the Baltic sound, communicated to him by an able seaman present at the making it. Being there then with one of the king's frigates, they went with their pinnace into the mid stream, and were carried violently by the current. Soon after that, they sunk a basket with a large cannon bullet to a certain depth of water, which gave a check to the boat's motion; and sinking it still lower and lower, the boat was driven a-head to the windward against the upper-current, the current aloft not being above four or five fathom deep. He added, that the lower the basket was let down, the stronger the under-current was found.

From this principle, it is easy to account for that continual in-draught of water out of the Atlantic into the Mediterranean through the straits of Gibraltar, a passage about 20 miles broad; yet without any sensible rising of the water along the coasts of Barbary, &c. or any overflowing of the land, which there lies very low.—Dr. Halley, however, solves the currents setting in at the straits without overflowing the banks, by the great evaporation, without supposing any under-current.

CURRICULUS, in our ancient writers, denotes the year or course of a year. *Actum est hoc annorum Dominice incarnationis quater quinquagenis & quinquies quinis lustris, & tribus curriculum; i. e.* In the year 1028: for four times fifty makes two hundred, and five times two hundred makes one thousand; five lustris are twenty-five years, and three curricula are three years.

CURRIERS, those who dress and colour leather after it comes from the tan-yard. See TANNING.

CURRODREPANUS (formed of *currus*, "chariot," and *σέριον*, "scythe" or "sickle"), in antiquity, a kind of chariot armed with scythes. The driver of these chariots was obliged to ride on one of the horses, as there was no other seat for him; the usual place for him being all armed with knives, as was likewise the hinder part of the chariot. There were no scythes pointing down to the earth, either from

Current
||
Currodre-
panus.

Currying,
Curling.

from the beam or axle-tree; but these were fixed at the head of the axle-tree in such a manner as to be moveable by means of a rope, and thereby could be raised or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRYING, the method of preparing leather with oil, tallow, &c.

The chief business is to soften and supple cow and calve-skins, which make the upper-leathers and quarters of shoes, covering of saddles, coaches, and other things which must keep out water. 1. These skins, after coming from the tanner's yard, having many fleshy fibres on them, the currier soaks them some time in common water. 2. He takes them out and stretches them on a very even wooden horse; then with a paring-knife he scrapes off all the superfluous flesh, and puts them in to soak again. 3. He puts them wet on a hurdle, and tramples them with his heels till they begin to grow soft and pliant. 4. He soaks thereon train-oil, which by its unctuous quality is the best liquor for this purpose. 5. He spreads them on large tables, and fastens them at the ends. There, with the help of an instrument called a *pummel*, which is a thick piece of wood, the under side of which is full of furrows crossing each other, he folds, squares, and moves them forwards and backwards several times, under the teeth of this instrument, which breaks their too great stiffness. This is what is properly called *currying*. The order and number of these operations is varied by different curriers, but the material part is always the same. 6. After the skins are curried, there may be occasion to colour them. The colours are black, white, red, yellow, green, &c. the other colours are given by the skimmers, who differ from curriers in this, that they apply their colours on the flesh side; the curriers on the hair side. In order to whiten skins, they are rubbed with lumps of chalk or white-lead, and afterwards with pumice-stone. 7. When a skin is to be made black, after having oiled and dried it, he passes over it a puff dipt in water impregnated with iron; and after his first wetting, he gives it another in a water prepared with foot, vinegar, and gum-arabic. These different dyes gradually turn the skin black, and the operations are repeated till it be of a shining black. The grain and wrinkles, which contribute to the suppleness of calves and cows leather, are made by the reiterated folds given to the skin in every direction, and by the care taken to scrape off all hard parts on the colour side.

CURSING AND SWEARING, an offence against God and religion, and a sin of all others the most extravagant and unaccountable, as having no benefit or advantage attending it. By the last statute against this crime, 19 Geo. II. which repeals all former ones, every labourer, sailor, or soldier, profanely cursing or swearing, shall forfeit 1s.; every other person under the rank of a gentleman, 2s.; and every gentleman or person of superior rank, 5s. to the poor of the parish; and, on a second conviction, double; and, for every subsequent offence, treble the sum first forfeited, with all charges of conviction: and, in default of payment, shall be sent to the house of correction for ten days. Any justice of the peace may convict upon his own hearing, or the testimony of one witness; and any

constable or peace officer, upon his own hearing, may secure any offender and carry him before a justice, and there convict him. If the justice omits his duty, he forfeits 5l. and the constable 40s. And the act is to be read in all parish churches and public chapels the Sunday after every quarter-day, on pain of 5l. to be levied by warrant from any justice. Besides this punishment for taking God's name in vain in common discourse, it is enacted, by stat. 3. Jac. I. c. 21. that if in any stage-play, interlude, or show, the name of the Holy Trinity, or any of the persons therein, be jestingly or profanely used, the offender shall forfeit 10l. one moiety to the king, and the other to the informer.

CURSITOR, a clerk belonging to the court of chancery, whose business it is to make out original writs. In the statute 18 Edw. III. they are called *clerks of course*, and are 24 in number, making a corporation of themselves. To each of them is allowed a division of certain counties, into which they issue out the original writs required by the subject.

CURTATE DISTANCE, in astronomy, the distance of a planet from the sun to that point, where a perpendicular let fall from the planet meets with the ecliptic.

CURTATION, in astronomy, is the interval between a planet's distance from the sun and the curtate distance.

CURTEYN, CURTANA, was the name of Edward the Confessor's sword, which is the first sword carried before the kings of England at their coronation; and it is said the point of it is broken as an emblem of mercy.

CURTIN, CURTAIN, or Courtin, in fortification, is that part of the rampart of a place, which is betwixt the flanks of two bastions, bordered with a parapet five feet high, behind which the soldiers stand to fire upon the covered way and into the moat.

CURTIUS (Marcus), a Roman youth, who devoted himself to the gods manes for the safety of his country, about 360 years before the Augustan age. A wide gap had suddenly opened in the forum, and the oracle had said that it never would close before Rome threw into it whatever it had most precious. Curtius immediately perceived that no less than an human sacrifice was required. He armed himself, mounted his horse, and solemnly threw himself into the gulf, which instantly closed over his head.

CURTIUS (Quintus), a Latin historian who wrote the life of Alexander the Great in 10 books, of which the two first are not indeed extant, but are so well supplied by Freinshemius, that the loss is scarcely regretted. Where this writer was born, or even when he lived, are points no one pretends to know. By his style he is supposed to have lived in or near the Augustan age; while some are not wanting, who imagine the work to have been composed in Italy about 300 years ago, and the name of *Quintus Curtius* to be fictitiously added to it. Cardinal du Perron was so great an admirer of this work, as to declare one page of it to be worth 30 of Tacitus; yet M. le Clerc, at the end of his *Art of Criticism*, has charged the writer with great ignorance and many contradictions. He has nevertheless many qualities as a writer, which will always make him admired and applauded.

Curfiter
||
Curtius.

CUR-

Curvature
||
Cusco.

CURVATURE OF A LINE, is the peculiar manner of its bending or flexure, by which it becomes a curve of such and such peculiar properties.

CURVE, in geometry, a line which running on continually in all directions, may be cut by one right line in more points than one. See CONIC SECTIONS and FLUCTIONS.

CURVET, or **CORVET**, in the manege, an air in which the horse's legs are raised higher than in the demi-volt; being a kind of leap up, and a little forwards, wherein the horse raises both his fore-legs at once, equally advanced, (when he is going straight forward, and not in a circle), and as his fore-legs are falling, he immediately raises his hind-legs, equally advanced, and not one before the other: so that all his four legs are in the air at once; and as he sets them down, he marks but twice with them.

CURVILINEAR, or **CURVILINEAL**, is said of figures bounded by curves or crooked lines.

CURVIROSTRA, in ornithology. See LOXIA.

CURULE CHAIR, in Roman antiquity, a chair adorned with ivory, wherein the great magistrates of Rome had a right to sit and be carried.

The curule magistrates were the ædiles, the prætors, censors, and consuls. This chair was fitted in a kind of chariot, whence it had its name. The senators who had borne the offices of ædiles, prætors, &c. were carried to the senate-house in this chair, as were also those who triumphed, and such as went to administer justice, &c. See ÆDILE, &c.

CURZOLA, an island in the gulf of Venice, lying on the coast of Dalmatia. It is about 20 miles long, and has a small town of the same name, with a bishop's see. It belongs to the Venetians. E. Long. 17. 15. N. Lat. 43. 6.

CUSA (Nicholas de), a learned cardinal, born of mean parentage, and named from Cusa, the place of his birth. He was made a cardinal in 1448; and being appointed governor of Rome by Pope Pius II. during his absence at Mantua, he was the chief concertor and manager of the war against the Turks. He founded a church, and a noble library of Greek and Latin authors, at Cusa; and left many excellent works behind him, which were collected and published in three volumes at Basil in 1565. In these he has made no scruple to detect the lying traditions and sophistries of the Roman church.

CUSCO, a large and handsome town of South America in Peru, formerly the residence of the Incas. It is seated at the foot of a mountain, and is built in a square form, in the middle of which there is the best market in all America. Four large streets terminate in this square, which are all as straight as a line, and regard the four quarters of the world. The Spaniards tell us wonderful things of the richness of the Inca's palace, and of the temple of the sun; but more sober travellers, judging from what remains, think most of them to be fabulous. At present it contains eight large parishes, and five religious houses, the best of which belongs to the Jesuits; and the number of the inhabitants may be about 50,000, of which three-fourths are the original natives, Americans. From this town there is a very long road, which runs along the Cordeleim; and, at certain distances, there are small houses for resting places, some parts of which are so artificially

wrought, that it is surprising how a people who had no iron tools could perform such workmanship. There are streams of water run through the town, which are a great convenience in so hot a country where it never rains. It is 375 miles east of Lima. W. Long. 74. 37. S. Lat. 13. 0.

CUSCUTA, **DODDER**: a genus of the digynia order, belonging to the tetrandria class of plants; and in the natural method ranking under those of which the order is doubtful. The calyx is quadrifid; the corolla monopetalous; the capsule bilocular. There are two species; one of which is a native of Britain, viz. the *Europæa*, dodder, hell-weed, or devil's guts. This is a very singular plant, almost destitute of leaves, parasitical, creeping, fixing itself to whatever is next to it. It decays at the root, and afterwards is nourished by the plant which supports it. Hops, flax, and nettles, are its common support; but principally the common nettle. Its blossoms are white. As soon as the shoots have twined about an adjacent plant, they send out from their inner surface a number of little vesicles or papillæ, which attach themselves to the bark or rind of the plant. By degrees the longitudinal vessels of the stalk, which appear to have accompanied the vesicles, shoot from their extremities, and make their way into the softer plant, by dividing the vessels, and insinuating themselves into the tenderest part of the stalk; and so intimately are they united with it, that it is easier to break than to disengage them from it. The whole plant is bitter. It affords a pale reddish colour. Cows, sheep, and swine, eat it; horses refuse it; goats are not fond of it.

CUSH, the eldest son of Ham, and father of Nimrod; the other sons of Cush were Seba, Havilah, Sabtah, Raamah, and Sabtecha. Gen. x. 6-8. Though we know of no other person of scripture that is called by this name, yet there are several countries that are called by it; whether the same man may have dwelt in them all at different times, or that there were some other men of this name, we are ignorant.

The Vulgate, Septuagint, and other interpreters, both ancient and modern, generally translate Cush, *Ethiopia*: but there are many passages wherein this translation cannot take place.

Cush is the name of the country watered by the Araxes. They who in translating the situation of Eden, have made *Cush* Ethiopia, gave rise to that unwarrantable opinion which Josephus and several others have entertained of the river Gihon's being the Nile. In this place (Gen. ii. 13.) the LXX translation renders the word *Cush* by the name of Ethiopia; and in this mistake, is not only here followed by our English version, but in the same particular in several other places.

Cush is the same as Cush. The Chaldees generally put the *tau* where the Hebrews use the *sebin*: they say *cush*, instead of *cush*. See CURU.

But Ethiopia is frequently in the Hebrew called *Cush*; and Josephus says, that they called themselves by this name, and that the same name was given them by all Asia. St Jerome tells us that the Hebrews call the Ethiopians by the same name, and the Septuagint give them no other. Jeremiah (xiii. 23.) says, "Can the Cushæan, or Ethiopian, change his colour." In Ezekiel (xxix. 10.) the Lord threatens to reduce "Egypt

Cuscuta,
Cush.

Cushion
||
Custom
and Habit.

"Egypt to a desert, from the tower of Syene even unto the border of Cush, or Ethiopia;" and in Isaiah, (xi. 11.) he says, "he will recover the remnant of his people, which shall be left from Assyria, and from Egypt, and Pathros, and from Cush." All these marks agree with Ethiopia properly so called, which lies to the south of Egypt.

Bochart has shown very clearly that there was a country called the "land of *Cush*" in Arabia Petraea, bordering upon Egypt; that this country extended itself principally upon the eastern shore of the Red-Sea, and, at its extremity, to the point of this sea, inclining towards Egypt and Palestine.

Thus there are three countries of the name of Cush, described in scripture, and all confounded by interpreters under the general name of Ethiopia.

CUSHION, in engraving, is a bag of leather filled with sand, commonly about nine inches square, and three or four thick, used for supporting the plate to be engraved.

CUSHION, in gilding, is made of leather, fastened to a square board, from 14 inches square to 10, with a handle. The vacuity between the leather and board is stuffed with fine tow or wool, so that the outer surface may be flat and even. It is used for receiving the leaves of gold from the paper, in order to its being cut into proper sizes and figures.

CUSI, in natural history, a name given by the people of the Philippine islands to a very small and very beautiful species of parrot.

CUSP, *cusps*, properly denotes the point of a spear or sword; but is used in astronomy to express the points or horns of the moon, or any other luminary.

Cusp, in astrology, is used for the first point of each of the 12 houses, in a figure or scheme of the heavens. See HOUSE.

CUSPIDATED, in botany, are such plants whose leaves are pointed like a spear.

CUSPINIAN (John), a German, was born at Sweinfurt in 1473, and died at Vienna in 1529. He was first physician to the emperor Maximilian I. and employed by that prince in several delicate negotiations. We have of his in Latin, 1. A history of the Roman emperors from Julius Caesar to the death of Maximilian I. Degory Wheare, in his *Methodus Legendæ Historiæ*, calls this "*luculentum sane opus, & omnium lectione dignissimum*." 2. An history of Austria; being a kind of continuation of the preceding. 3. An history of the origin of the Turks, and of their cruelties towards Christians. Gerard Vossius calls Cuspinian *magnum suo ævo historiæ lumen*.

CUSTOM, a very comprehensive term, denoting the manners, ceremonies, and fashions of a people, which having turned into a habit, and passed into use, obtain the force of laws; in which sense it implies such usages, as, though voluntary at first, are yet by practice become necessary.

Custom is hence, both by lawyers and civilians, defined *lex non scripta*, "a law or right not written," established by long usage, and the consent of our ancestors: in which sense it stands opposed to the *lex scripta*, or "the written law." See LAW, Part II. No. 38—41.

CUSTOM and Habit, in the human œconomy: The former is often confounded with the latter. By *cu-*
No. 96.

stom we mean a frequent reiteration of the same act; and by *habit*, the effect that custom has on the mind or body. This curious subject falls to be considered first in a moral, and secondly in a physical light.

I. *Influence of Custom and Habit on the Mind, &c.* Custom hath such influence upon many of our feelings, by warping and varying them, that its operations demand the attention of all those who would be acquainted with human nature. The subject, however, is intricate. Some pleasures are fortified by custom: and yet custom begets familiarity, and consequently indifference:

Kaimes's
Elements of
Criticism.

If all the year were playing holidays,
To sport would be as tedious as to work:
But when they seldom come, they wish'd-for come,
And nothing pleaseth but rare accidents. *Shakespeare.*

In many instances, satiety and disgust are the consequences of reiteration; again, though custom blunts the edge of distress and of pain; yet the want of any thing to which we have been long accustomed is a sort of torture. A clue to guide us through all the intricacies of this labyrinth, would be an acceptable present.

Whatever be the cause, it is certain that we are much influenced by custom: it hath an effect upon our pleasures, upon our actions, and even upon our thoughts and sentiments. Habit makes no figure during the vivacity of youth: in middle age it gains ground; and in old age governs without controul. In that period of life generally speaking, we eat at a certain hour, take exercise at a certain hour, go to rest at a certain hour, all by the direction of Habit: nay, a particular seat, table, bed, comes to be essential; and a habit in any of these cannot be controuled without uneasiness.

Any slight or moderate pleasure, frequently reiterated for a long time, forms a peculiar connection between us and the thing that causes the pleasure. This connection, termed *habit*, has the effect to awaken our desire or appetite for that thing when it returns not as usual. During the course of enjoyment, the pleasure rises insensibly higher and higher till a habit be established; at which time the pleasure is at its height. It continues not, however, stationary: the same customary reiteration which carried it to its height, brings it down again by insensible degrees, even lower than it was at first; but of that circumstance afterwards. What at present we have in view, is to prove by experiments, that those things which at first are but moderately agreeable, are the aptest to become habitual. Spiritous liquors, at first scarce agreeable, readily produce an habitual appetite: and custom prevails so far, as even to make us fond of things originally disagreeable, such as coffee, assa foetida, and tobacco.

A walk upon the quarter-deck, though intolerably confined, becomes however so agreeable by custom, that a sailor in his walk on shore confines himself commonly within the same bounds. The author knew a man who had relinquished the sea for a country life: in the corner of his garden, he reared an artificial mount with a level summit, resembling most accurately a quarter-deck, not only in shape but in size; and here he generally walked. In Minorca governor Kane made an excellent road the whole length of the island;

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island; and yet the inhabitants adhere to the old road, though not only longer, but extremely bad. Play or gaming, at first barely amusing by the occupation it affords, becomes in time extremely agreeable; and is frequently prosecuted with avidity, as if it were the chief business of life. The same observation is applicable to the pleasures of the internal senses, those of knowledge and virtue in particular: children have scarce any sense of these pleasures; and men very little who are in the state of nature without culture: our taste for virtue and knowledge improves slowly; but is capable of growing stronger than any other appetite in human nature.

To introduce an active habit, frequency of acts is not sufficient without length of time: the quickest succession of acts in a short time is not sufficient; nor a slow succession in the longest time. The effect must be produced by a moderate soft action, and a long series of easy touches, removed from each other by short intervals. Nor are these sufficient without regularity in the time, place, and other circumstances of the action; the more uniform any operation is, the sooner it becomes habitual. And this holds equally in a passive habit; variety, in any remarkable degree, prevents the effect; thus any particular food will scarce ever become habitual where the manner of dressing is varied. The circumstances then requisite to augment a moderate pleasure, and at the long-run to form a habit, are weak uniform acts, reiterated during a long course of time, without any considerable interruption: every agreeable cause that operates in this manner will grow habitual.

Affection and aversion, as distinguished from passion on the one hand, and on the other from original disposition, are in reality habits respecting particular objects, acquired in the manner above set forth. The pleasure of social intercourse with any person, must originally be faint, and frequently reiterated, in order to establish the habit of affection. Affection thus generated, whether it be friendship or love, seldom swells into any tumultuous or vigorous passion; but it is however the strongest cement that can bind together two individuals of the human species. In like manner, a slight degree of disgust often reiterated with regularity,

grows into the habit of aversion, which commonly subsists for life.

Objects of taste that are delicious, far from tending to become habitual, are apt by indulgence to produce satiety and disgust: no man contracts a habit of sugar, honey, or sweet-meats, as he doth of tobacco.

These violent delights have violent ends,
And in their triumphs die. The sweetest honey
Is loathsome in its own deliciousness,
And in the taste confounds the appetite;
Therefore love moderately, long love doth so;
Too swift arrives a tardy as too slow.

Romeo and Juliet, act 2. sc. 6.

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The same observation holds with respect to all objects that being extremely agreeable raise violent passions: such passions are incompatible with a habit of any sort: and in particular they never produce affection nor aversion: a man who at first sight falls violently in love, has a strong desire of enjoyment, but no affection for the woman (A): a man who is surprised with an unexpected favour, burns for an opportunity to exert his gratitude, without having any affection for his benefactor: neither does desire of vengeance for an atrocious injury involve aversion.

It is perhaps not easy to say why moderate pleasures gather strength by custom: but two causes concur to prevent that effect in the more intense pleasures. These, by an original law in our nature, increase quickly to their full growth, and decay with no less precipitation: and custom is too slow in its operation to overcome that law. The other cause is not less powerful: exquisite pleasure is extremely fatiguing; occasioning, as a naturalist would say, great expence of animal spirits; and of such the mind cannot bear so frequent gratification, as to superinduce a habit: if the thing that raises the pleasure return before the mind have recovered its tone and relish, disgust ensues instead of pleasure.

A habit never fails to admonish us of the wanted time of gratification, by raising a pain for want of the object, and a desire to have it. The pain of want is always first felt; the desire naturally follows; and upon presenting the object, both vanish instantaneously. Thus a man accustomed to tobacco, feels, at the end

4 1

of

(A) Violent love, without affection, is finely exemplified in the following story. When Constantinople was taken by the Turks, Irene, a young Greek of an illustrious family, fell into the hands of Mahomet II. who was at that time in the prime of youth and glory. His savage heart being subdued by her charms, he shut himself up with her, denying access even to his ministers. Love obtained such ascendant as to make him frequently abandon the army, and fly to his Irene. War relaxed, for victory was no longer the monarch's favourite passion. The soldiers, accustomed to booty, began to murmur, and the infection spread even among the commanders. The Basha Mustapha, consulting the fidelity he owed his master, was the first who durst acquaint him of the discourses held publicly to the prejudice of his glory. The sultan, after a gloomy silence, formed his resolution. He ordered Mustapha to assemble the troops next morning; and then with precipitation retired to Irene's apartment. Never before did that princess appear so charming; never before did the prince bestow so many warm caresses. To give a new lustre to her beauty, he exhorted her women next morning to bestow their utmost art and care on her dress. He took her by the hand, led her into the middle of the army, and pulling off her veil, demanded of the bashas with a fierce look, whether they had ever beheld such a beauty? After an awful pause, Mahomet with one hand laying hold of the young Greek by her beautiful locks, and with the other pulling out his scymitar, severed the head from the body at one stroke. Then turning to his grandees, with eyes wild and furious, "This sword (says he), when it is my will, knows to cut the bands of love." However strange it may appear, we learn from experience, that desire of enjoyment may consist with the most brutal aversion, directed both to the same woman. Of this we have a noted example in the first book of Sully's Memoirs; to which we choose rather to refer the reader, for it is too gross to be transcribed.

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of the usual interval, a confused pain of want; which at first points at nothing in particular, though it soon settles upon its accustomed object: and the same may be observed in persons addicted to drinking, who are often in an uneasy restless state before they think of the bottle. In pleasures indulged regularly, and at equal intervals, the appetite, remarkably obsequious to custom, returns regularly with the usual time of gratification; not sooner, even though the object be presented. This pain of want arising from habit, seems directly opposite to that of satiety; and it must appear singular, that frequency of gratification should produce effects so opposite, as are the pains of excess and of want.

The appetites that respect the preservation and propagation of our species, are attended with a pain of want similar to that occasioned by habit: hunger and thirst are uneasy sensations of want, which always precede the desire of eating or drinking; and a pain for want of carnal enjoyment, precedes the desire of an object. The pain being thus felt independent of an object, cannot be cured but by gratification. Very different is an ordinary passion, in which desire precedes the pain of want: such a passion cannot exist but while the object is in view; and therefore, by removing the object out of thought, it vanisheth with its desire and pain of want.

The natural appetites above mentioned, differ from habit in the following particular: they have an undetermined direction toward all objects of gratification in general; whereas an habitual appetite is directed to a particular object: the attachment we have by habit to a particular woman, differs widely from the natural passion which comprehends the whole sex; and the habitual relish for a particular dish, is far from being the same with a vague appetite for food. That difference notwithstanding, it is still remarkable, that nature hath enforced the gratification of certain natural appetites essential to the species, by a pain of the same sort with that which habit produceth.

The pain of habit is less under our power than any other pain that arises from want of gratification: hunger and thirst are more easily endured, especially at first, than an unusual intermission of any habitual pleasure: persons are often heard declaring, they would forego sleep or food, rather than tobacco. We must not however conclude, that the gratification of an habitual appetite affords the same delight with the gratification of one that is natural: far from it; the pain of want only is greater.

The slow and reiterated acts that produce a habit, strengthen the mind to enjoy the habitual pleasure in greater quantity and more frequency than originally; and by that means a habit of intemperate gratification is often formed: after unbounded acts of intemperance, the habitual relish is soon restored, and the pain for want of enjoyment returns with fresh vigour.

The causes of the present emotions hitherto in view, are either an individual, such as a companion, a certain dwelling-place, a certain amusement; or a particular species, such as coffee, mutton, or any other food. But habit is not confined to such. A constant train of trifling diversions may form such a habit in the mind, that it cannot be easy a moment without amusement: a variety in the objects prevents a habit

as to any one in particular: but as the train is uniform with respect to amusement, the habit is formed accordingly; and that sort of habit may be denominated a *generic habit*, in opposition to the former, which is a *specific habit*. A habit of a town-life, of country-sports, of solitude, of reading, or of business, where sufficiently varied, are instances of generic habits. Every specific habit hath a mixture of the generic; for the habit of any one sort of food makes the taste agreeable and we are fond of that taste wherever found. Thus a man deprived of an habitual object, takes up with what most resembles it; deprived of tobacco, any bitter herb will do rather than want; a habit of punch makes wine a good resource: accustomed to the sweet society and comforts of matrimony, the man unhappily deprived of his beloved object, inclines the sooner to a second. In general, when we are deprived of a habitual object, we are fond of its qualities in any other object.

The reasons are assigned above, why the causes of intense pleasure become not readily habitual: but now we discover, that these reasons conclude only against specific habits. In the case of a weak pleasure, a habit is formed by frequency and uniformity of reiteration, which, in the case of an intense pleasure, produceth satiety and disgust. But it is remarkable, that satiety and disgust have no effect, except as to that thing singly which occasions them: a surfeit of honey produceth not a loathing of sugar; and intemperance with one woman produceth no disrelish of the same pleasure with others. Hence it is easy to account for a generic habit in any intense pleasure: the delight we had in the gratification of the appetite, inflames the imagination, and makes us search, with avidity, for the same gratification in whatever other object it can be found. And thus uniform frequency in gratifying the same passion upon different objects, produceth at length a generic habit. In this manner one acquires an habitual delight in high and poignant fauces, rich dress, fine equipages, crowds of company, and in whatever is commonly termed *pleasure*. There concurs, at the same time, to introduce this habit, a peculiarity observed above, that reiteration of acts enlarges the capacity of the mind to admit a more plentiful gratification than originally, with regard to frequency, as well as quantity.

Hence it appears, that though a specific habit cannot be formed but upon a moderate pleasure, a generic habit may be formed upon any sort of pleasure, moderate or immoderate, that hath variety of objects. The only difference is, that a weak pleasure runs naturally into a specific habit; whereas an intense pleasure is altogether averse to such a habit. In a word, it is only in singular cases that a moderate pleasure produces a generic habit; but an intense pleasure cannot produce any other habit.

The appetites that respect the preservation and propagation of the species, are formed into habit in a peculiar manner; the time as well as measure of their gratification are much under the power of custom; which, introducing a change upon the body, occasions a proportional change in the appetites. Thus, if the body be gradually formed to a certain quantity of food at stated times, the appetite is regulated accordingly; and the appetite is again changed, when a different

habit

Custom and Habit. habit of body is introduced by a different practice. Here it would seem, that the change is not made upon the mind, which is commonly the case in passive habits, but upon the body.

When rich food is brought down by ingredients of a plainer taste, the composition is susceptible of a specific habit. Thus the sweet taste of sugar, rendered less poignant in a mixture, may, in course of time, produce a specific habit for such mixture. As moderate pleasures, by becoming more intense, tend to generic habits; so intense pleasures, by becoming more moderate, tend to specific habits.

The beauty of the human figure, by a special recommendation of nature, appears to us supreme, amid the great variety of beauteous forms bestowed upon animals. The various degrees in which individuals enjoy that property, render it an object sometimes of a moderate, sometimes of an intense, passion. The moderate passion, admitting frequent reiteration without diminution, and occupying the mind without exhausting it, turns gradually stronger till it becomes a habit. Nay, instances are not wanting, of a face at first disagreeable, afterwards rendered indifferent by familiarity, and at length agreeable by custom. On the other hand, consummate beauty, at the very first glance, fills the mind so as to admit no increase. Enjoyment lessens the pleasure; and if often repeated, ends commonly in satiety and disgust. The impressions made by consummate beauty, in a gradual succession from lively to faint, constitute a series opposite to that of faint impressions waxing gradually more lively, till they produce a specific habit. But the mind when accustomed to beauty contracts a relish for it in general, though often repelled from particular objects by the pain of satiety; and thus a generic habit is formed, of which inconstancy in love is the necessary consequence; for a generic habit, comprehending every beautiful object, is an invincible obstruction to a specific habit, which is confined to one.

But a matter which is of great importance to the youth of both sexes, deserves more than a cursory view. Though the pleasant emotion of beauty differs widely from the corporeal appetite, yet when both are directed to the same object, they produce a very strong complex passion: enjoyment in that case must be exquisite; and therefore more apt to produce satiety than in any other case whatever. This is a never-failing effect, where consummate beauty in the one party, meets with a warm imagination and great sensibility in the other. What we are here explaining, is true without exaggeration; and they must be insensible upon whom it makes no impression: it deserves well to be pondered by the young and the amorous, who, in forming the matrimonial society, are too often blindly impelled by the animal pleasure merely, inflamed by beauty. It may indeed happen, after the pleasure is gone, and go it must with a swift pace, that a new connection is formed upon more dignified and more lasting principles: but this is a dangerous experiment; for even supposing good sense, good temper, and internal merit of every sort, yet a new connection upon such qualifications is rarely formed: it commonly, or rather always happens, that such qualifications, the only solid foundation of an indissoluble

connection, are rendered altogether invisible by satiety of enjoyment creating disgust.

One effect of custom, different from any that have been explained, must not be omitted, because it makes a great figure in human nature: though custom augments moderate pleasures, and lessens those that are intense, it has a different effect with respect to pain; for it blunts the edge of every sort of pain and distress, faint or acute. Uninterrupted misery, therefore, is attended with one good effect: if its torments be incessant, custom hardens us to bear them.

The changes made in forming habits are curious. Moderate pleasures are augmented gradually by reiteration, till they become habitual; and then are at their height: but they are not long stationary: for from that point they gradually decay, till they vanish altogether. The pain occasioned by want of gratification, runs a different course: it increases uniformly: and at last becomes extreme, when the pleasure of gratification is reduced to nothing.

—————It so falls out,

That what we have we prize not to the worth,
While we enjoy it; but being lack'd and lost,
Why then we rack the value; then we find
The virtue that possession would not show us
Whilst it was ours.

Much ado about Nothing, act 4. sc. 2.

The effect of custom with relation to a specific habit, is displayed through all its varieties in the use of tobacco. The taste of that plant is at first extremely unpleasant: our disgust lessens gradually, till it vanishes altogether; at which period the taste is neither agreeable nor disagreeable: continuing the use of the plant, we begin to relish it; and our relish improves by use, till it arrive at perfection: from that period it gradually decays, while the habit is in a state of increment, and consequently the pain of want. The result is, that when the habit has acquired its greatest vigour, the relish is gone; and accordingly we often smoke and take snuff habitually, without so much as being conscious of the operation. We must expect gratification after the pain of want; the pleasure of which gratification is the greatest when the habit is the most vigorous: it is of the same kind with the pleasure one feels upon being delivered from the rack. This pleasure however is but occasionally the effect of habit; and however, exquisite, is avoided as much as possible because of the pain that precedes it.

With regard to the pain of want, we can discover no difference between a generic and a specific habit; but these habits differ widely with respect to the positive pleasure. We have had occasion to observe, that the pleasure of a specific habit decays gradually till it turn imperceptible: the pleasure of a generic habit, on the contrary, being supported by variety of gratification, suffers little or no decay after it comes to its height. However it may be with other generic habits, the observation certainly holds with respect to the pleasures of virtue and of knowledge: the pleasure of doing good has an unbounded scope, and may be so variously gratified that it can never decay; science is equally unbounded; our appetite for knowledge having an ample range of gratification, where discoveries are recommended by novelty, by variety, by utility, or by all of them.

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In this intricate inquiry, we have endeavoured, but without success, to discover by what particular means it is that custom hath influence upon us: and now nothing seems left, but to hold our nature to be so framed as to be susceptible of such influence. And supposing it purposely so framed, it will not be difficult to find out several important final causes. That the power of custom is a happy contrivance for our good, cannot have escaped any one who reflects, that business is our province, and pleasure our relaxation only. Now satiety is necessary to check exquisite pleasures, which otherwise would engross the mind and unqualify us for business. On the other hand, as business is sometimes painful, and is never pleasant beyond moderation, the habitual increase of moderate pleasure and the conversion of pain into pleasure, are admirably contrived for disappointing the malice of fortune, and for reconciling us to whatever course of life may be our lot:

How use doth breed a habit in a man!
This shadowy desert, unfrequented woods,
I better brook than flourishing peopled towns.
Here I can sit alone, unseen of any,
And to the nightingale's complaining notes
Tune my distresses, and record my woes.

Two Gentlemen of Verona, act 5. sc. 4.

As the foregoing distinction between intense and moderate, hold in pleasure only, every degree of pain being softened by time, custom is a catholicon for pain and distress of every sort; and of that regulation the final cause requires no illustration.

Another final cause of custom will be highly relished by every person of humanity, and yet has in a great measure been overlooked; which is, that custom hath a greater influence than any other known cause, to put the rich and the poor upon a level: weak pleasures, the share of the latter, become fortunately stronger by custom; while voluptuous pleasures, the share of the former, are continually losing ground by satiety. Men of fortune, who possess palaces, sumptuous gardens, rich fields, enjoy them less than passengers do. The goods of Fortune are not unequally distributed; the opulent possess what others enjoy.

And indeed, if it be the effect of habit, to produce the pain of want in a high degree while there is little pleasure in enjoyment, a voluptuous life is of all the least to be envied. Those who are habituated to high feeding, easy vehicles, rich furniture, a crowd of valets, much deference and flattery, enjoy but a small share of happiness, while they are exposed to manifold distresses. To such a man, enslaved by ease and luxury, even the petty inconveniences in travelling, of a rough road, bad weather, or homely fare, are serious evils: he loses his tone of mind, turns peevish, and would wreak his resentment even upon the common accidents of life. Better far to use the goods of Fortune with moderation: a man who by temperance and activity hath acquired a hardy constitution, is, on the one hand, guarded against external accidents; and, on the other, is provided with great variety of enjoyment ever at command.

We shall close this branch of the subject with an article more delicate than abstruse, viz. what authority custom ought to have over our taste in the fine arts. One particular is certain, that we cheerfully abandon

to the authority of custom things that nature hath left indifferent. It is custom, not nature, that hath established a difference between the right hand and the left, so as to make it awkward and disagreeable to use the left where the right is commonly used. The various colours, though they affect us differently, are all of them agreeable in their purity: but custom has regulated that matter in another manner; a black skin upon a human being, is to us disagreeable; and a white skin probably not less so to a negro. Thus things, originally indifferent, become agreeable or disagreeable by the force of custom. Nor will this be surprising after the discovery made above, that the original agreeableness or disagreeableness of an object, is, by the influence of custom, often converted into the opposite quality.

Proceeding to matters of taste, where there is naturally a preference of one thing before another; it is certain, in the first place, that our faint and more delicate feelings are readily susceptible of a bias from custom; and therefore that it is no proof of a defective taste, to find these in some measure influenced by custom: dress and the modes of external behaviour, are regulated by custom in every country: the deep red or vermilion with which the ladies in France cover their cheeks, appears to them beautiful in spite of nature; and strangers cannot altogether be justified in condemning that practice, considering the lawful authority of custom, or of the *fashion* as it is called: it is told of the people who inhabit the skirts of the Alps facing the north, that the swelling they universally have in the neck is to them agreeable. So far has custom power to change the nature of things, and to make an object originally disagreeable take on an opposite appearance.

But as to every particular that can be denominated proper or improper, right or wrong, custom has little authority, and ought to have none. The principle of duty takes naturally place of every other; and it argues a shameful weakness or degeneracy of mind, to find it in any case so far subdued as to submit to custom.

II. *Effects of Custom and Habit in the Animal Economy.* These may be reduced to five heads. 1. On the simple solids. 2. On the organs of sense. 3. On the moving power. 4. On the whole nervous power. 5. On the system of blood-vessels.

1. *Effects on the Simple Solids.* Custom determines the degree of flexibility of which they are capable. By frequently repeated flexion, the several particles of which these solids consist are rendered more supple and moveable on each other. A piece of catgut, e.g. when on the stretch, and having a weight appended to its middle, will be bended thereby perhaps half an inch; afterwards, by frequent repetitions of the same weight, or by increasing the weight, the flexibility will be rendered double. The degree of flexibility has a great effect in determining the degree of oscillation, provided that elasticity is not affected; if it go beyond this, it produces flaccidity. Again, custom determines the degree of tension; for the same elastic chord that now oscillates in a certain degree of tension, will, by frequent repetition of these oscillations, be so far relaxed, that the extension must be renewed in order to produce the same tension, and consequently the same

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Cullen's
Lectures
on the
Mat. Med.
1st edit.

vibra-

Custom and Habit. vibrations, as at first. This appears in many instances in the animal economy, as when different muscles concur to give a fixed point or tension to each other: and thus a weakly child totters as it walks; but by giving it a weight to carry, and by thus increasing the tension of the system, it walks more steadily. In like manner, the fullness of the system gives strength, by distending the vessels every where, and so giving tension: hence a man, by good nourishment, from being weak, acquires a great increase of strength in a few days: and, on the other hand, evacuations weaken by taking off the tension.

2. *Effects on the Organs of Sense.* Repetition gives a greater degree of sensibility, in so far only as it renders perception more accurate. Repetition alone gives lasting impression, and thus lays the foundation of memory; for single impressions are but retained for a short time, and are soon forgot. Thus a person, who at present has little knowledge of cloths, will by frequently handling them, acquire a skill of discerning them, which to others seems almost impossible. Many are apt to mistake this for a nicer sensibility, but they are much mistaken; for it is an universal law, that the repetition of impression renders us less acute. This is well illustrated by the operation of medicines; for all medicines which act on the organs of sense must, after some time, be increased in their dose to produce the same effects as at first. This affords a rule in practice with regard to these medicines; it becoming necessary, after a certain time, to change one medicine even for a weaker of the same nature. Thus medicines, which even have no great apparent force, are found, by long use, to destroy the sensibility of the system to other impressions. But to this general rule, that, by repetition, the force of impressions is more and more diminished, there are some exceptions. Thus persons, by a strong emetic, have had their stomachs rendered so irritable, that 1-20th of the first dose was sufficient to produce the same effect. This, however, oftener takes place when the vomit is repeated every day; for if the same vomit be given at pretty considerable intervals, the general rule is observed to hold good. Thus two contrary effects of habit are to be noted; and it is proper to observe, that the greater irritability is more readily produced when the first impression is great, as in the case first given of the strong emetic. This may be farther illustrated by the effect of fear, which is commonly observed to be diminished on repetition; which can only be attributed to custom: while, on the other hand, there are instances of persons, who, having once got a great fright, have for ever after continued slaves to fears excited by impressions of the like kind, however slight: which must be imputed entirely to excess of the first impression, as has been already observed. To this head also belongs the association of ideas, which is the foundation of memory and all our intellectual faculties, and is entirely the effect of custom: with regard to the body also, these associations often take place. And sometimes, in producing effects on the body, associations seemingly opposite are formed, which, through custom, become absolutely necessary; e. g. a person long accustomed to sleep in the neighbourhood of a great noise, is so far from being incommoded on that account, that afterwards such noise becomes necessary to produce sleep.

It will be of use to attend to this in medical practice; for we ought to allow for, however opposite it may seem at the time, whatever usually attended the purpose we design to effect. Thus, in the instance of sleep, we must not exclude noise when we want to procure rest, or any causes which may seem opposite to such an effect, provided custom has rendered them necessary.

3. *Effects on the Moving Fibres.* A certain degree of tension is necessary to motion, which is to be determined by custom; e. g. a fencer, accustomed to one foil, cannot have the same steadiness or activity with one heavier or lighter. It is necessary also that every motion should be performed in the same situation, or posture of the body, as the person has been accustomed to employ in that motion. Thus, in any surgical operation, a certain posture is recommended; but if the operator has been accustomed to another, such a one, however awkward, becomes necessary afterwards to his right performance of that operation.

Custom also determines the degree of oscillation of which the moving fibres are capable. A person accustomed to strong muscular exertions is quite incapable of the more delicate. Thus writing is performed by small muscular contractions; but if a person has been accustomed to stronger motions with these muscles, he will write with much less steadiness.

This subject of tension, formerly attributed to the *simple fibres*, is probably more strictly applicable to the moving: for, besides a tension from flexion, there is also a tension from irritation and sympathy; e. g. the tension of the stomach from food, gives tension to the whole body. Wine and spirituous liquors give tension; e. g. a person that is so affected with tremor as scarcely to hold a glass of any of these liquors to his head, has no sooner swallowed it, than his whole body becomes steady; and after the system has been accustomed to such stimuli, if they are not applied at the usual time, the whole body becomes flaccid, and of consequence unsteady in its motions.

Again, custom gives facility of motion. This seems to proceed from the distension which the nervous power gives to the moving fibres themselves. But in whatever manner it is occasioned, the effect is obvious; for any new or unusual motion is performed with great difficulty.

It is supposed that sensation depends on a communication with the sensorium commune, by means of organs sufficiently distended with nervous influence. We have found, that sensibility is diminished by repetition. And we have now to observe, that in some cases it may be increased by repetition, owing to the nervous power itself flowing more easily into the part on account of custom. Attention to a particular object may also determine a greater influx into any particular part, and thus the sensibility and irritability of that particular part may be increased.

But with regard to facility of motion, the nervous power, no doubt, flows most easily into those parts to which it has been accustomed: yet facility of motion does not entirely depend on this, but in part also on the concurrence of the action of a great many muscles; e. g. Winslow has observed, that in performing any motion, a number of muscles concur to give a fixed point to those intended chiefly to act, as well as to others

Custom and Habit. others that are to vary and modify their action. This, however, is assisted by repetition and the freer influx; as by experience we know the proper attitude for giving a fixed point in order to perform any action with facility and steadiness.

Custom gives a spontaneous motion also, which seems to recur at stated periods, even when the exciting causes are removed. Thus, if the stomach has been accustomed to vomit from a particular medicine, it will require a much smaller dose than at first, nay, even the very sight or remembrance of it will be sufficient to produce the effect; and there are not wanting instances of habitual vomiting, from the injudicious administration of emetics. It is on this account that all spasmodic affections so easily become habitual, and are so difficult of cure; as we must not only avoid all the exciting causes, even in the smallest degree, but also their association.

Custom also gives strength of motion; strength depends on strong oscillations, a free and copious influx of the nervous power, and on dense solids. But in what manner all these circumstances have been brought about by repetition, has been already explained. The effect of custom, in producing strength, may be thus illustrated: a man that begins with lifting a calf, by continuing the same practice every day, will be able to lift it when grown to the full size of a bull.

All this is of considerable importance in the practice of physic, though but too little regarded; for the recovery of weak people, in great measure, depends on the use of exercise, suited to their strength, or rather within it, frequently repeated and gradually increased. Farther, it is necessary to observe, that custom regulates the particular celerity with which each motion is to be performed: for a person accustomed, for a considerable time, to one degree of celerity, becomes incapable of a greater; *e. g.* a man accustomed to slow walking will be out of breath before he can run 20 paces. The train, or order, in which our motions are to be performed, is also established by custom; for if a man hath repeated motions, for a certain time, in any particular order, he cannot afterwards perform them in any other. Custom also very frequently associates motions and sensations: thus, if a person has been in use of associating certain ideas with the ordinary stimulus which in health excites urine, without these ideas the usual inclination will scarce excite that excretion; and, when these occur, will require it even in the absence of the primary exciting cause: *e. g.* it is very ordinary for a person to make urine when going to bed; and if he has been for any length of time accustomed to do so, he will ever afterwards make urine at that time, though otherwise he would often have no such inclination: by this means some secretions become, in a manner, subject to the will. The same may be said of going to stool: and this affords us a good rule in the case of costiveness; for by endeavouring to fix a stated time for this evacuation, it will afterwards, at such time, more readily return. It is farther remarkable, that motions are inseparably associated with other motions: this, perhaps, very often proceeds from the necessary degree of tension; but it also often depends merely on custom, an instance of which we have in the uniform motions of our eyes.

4. *Effects on the whole Nervous Power.* We have

found, that, by custom, the nervous influence may be determined more easily into one part than another; and therefore, as all the parts of the system are strongly connected, the sensibility, irritability, and strength of any particular part, may be thus increased. Custom also has the power of altering the natural temperament, and of inducing a new one. It is also in the power of custom to render motions periodical, and periodically spontaneous. An instance of this we have in sleep, which is commonly said to be owing to the nervous power being exhausted, the necessary consequence of which is sleep, *e. g.* a rest of the voluntary motions to favour the recruit of that power: but if this were the case, the return of sleep should be at different times, according as the causes which diminish the nervous influence operate more or less powerfully; whereas the case is quite otherwise, these returns of sleep being quite regular. This is no less remarkable in the appetites, that return at particular periods, independent of every cause but custom. Hunger, *e. g.* is an extremely uneasy sensation; but goes off of itself, if the person did not take food at the usual time. The excretions are farther proofs of this, *e. g.* going to stool, which, if it depended on any particular irritation, should be at longer or shorter intervals according to the nature of the aliment. There are many other instances of this disposition of the nervous influence to periodical motions, as the story of the idiot of Stafford, recorded by Dr Plot (*Spectator*, n^o 447.), who, being accustomed to tell the hours of the church-clock as it struck, told them as exactly when it did not strike by its being out of order. Montaigne tells us of some oxen that were employed in a machine for drawing water, who, after making 300 turns, which was the usual number, could be stimulated by no whip or goad to proceed farther. Infants, also, cry for and expect the breast at those times in which the nurse has been accustomed to give it.

Hence it would appear, that the human economy is subject to periodical revolutions, and that these happen not oftner may be imputed to variety: and this seems to be the reason why they happen oftner in the body than mind, because that is subject to greater variety. We see frequent instances of this in diseases, and in their crises; intermitting fevers, epilepsies, asthmas, &c. are examples of periodical affections: and that critical days are not so strongly marked in this country as in Greece, and some others, may be imputed to the variety and instability of our climate; but perhaps still more to the less sensibility and irritability of our system; for the exhibition of medicine has little effect in disturbing the crises, though it be commonly assigned as a cause.

We are likewise subject to many habits independent of ourselves, as from the revolutions of the celestial bodies, particularly the sun, which determines the body, perhaps, to other daily revolutions besides sleeping and waking. There are also certain habits depending on the seasons. Our connections, likewise, with respect to mankind, are means of inducing habits. Thus regularity from associating in business induces regular habits both of mind and body.

There are many diseases which, though they arose at first from particular causes, at last continue merely through custom or habit. These are chiefly of the nervous

Custom nervous system. We should therefore study to counteract such habits; and accordingly Hippocrates, among other things for the cure of epilepsy, orders an entire change of the manner of life. We likewise imitate this in the chincough; which often resists all remedies till the air, diet, and ordinary train of life, are changed.

5. *Effects on the Blood-vessels.* From what has been said on the nervous power, the distribution of the fluids must necessarily be variously affected by custom, and with that the distribution of the different excretions; for though we make an estimate of the proportion of the excretions to one another, according to the climate and seasons, they must certainly be very much varied by custom.

On this head we may observe, that blood-letting has a manifest tendency to increase the quantity of the blood; and if this evacuation be repeated at stated times, such symptoms of repletion, and such motions are excited at the returning periods, as render the operation necessary. The same has been observed in some spontaneous hemorrhagies. These, indeed, at first, may have some exciting causes, but afterwards they seem to depend chiefly on custom. The best proof of this is with regard to the menstrual evacuation. There is certainly something originally in females, that determines that evacuation to the monthly periods. Constant repetition of this comes to fix it, independent of strong causes, either favouring or preventing repletion; e. g. blood-letting will not impede it, nor filling the body induce it: and indeed, so much is this evacuation connected with periodical motions, that it is little in our power to produce any effect by medicines but at those particular times. Thus if we would relax the uterine system, and bring back this evacuation when suppressed, our attempts would be vain and fruitless, unless given at that time when the menses should have naturally returned.

CUSTOMS, in political economy, or the duties, toll, tribute, or tariff, payable to the king upon merchandize exported and imported, form a branch of the perpetual taxes. See Tax.

The considerations upon which this revenue (or the more ancient part of it, which arose only from exports) was invested in the king, were said to be two: 1. Because he gave the subject leave to depart the kingdom, and to carry his goods along with him. 2. Because the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchant from pirates. Some have imagined they are called with us *customs*, because they were the inheritance of the king by immemorial usage and the common law, and not granted him by any statute: but Sir Edward Coke hath clearly shown, that the king's first claim to them was by grant of parliament 3 Edw. I. though the record thereof is not now extant. And indeed this is in express words confessed by statute 25 Edw. I. c. 7. wherein the king promises to take no customs from merchants, without the common assent of the realm, "saving to us and our heirs the customs on wool, skins, and leather, formerly granted to us by the commonalty aforesaid." These were formerly called *hereditary customs* of the crown; and were due on the exportation only of the said three commodities, and of none other: which were styled the *staple* commodi-

ties of the kingdom, because they were obliged to be brought to those ports where the king's staple was established, in order to be there first rated, and then exported. They were denominated in the barbarous Latin of our ancient records, *custuma*, (an appellation which seems to be derived from the French word *coustum* or *coutum*, which signifies toll or tribute, and owes its own etymology to the word *coust*, which signifies price, charge, or, as we have adopted it in English, *cost*); not *consuetudines*, which is the language of our law whenever it means merely usages. The duties on wool, sheep-skins or woollfells, and leather exported, were called *custuma antiqua sive magna*, and were payable by every merchant, as well native as stranger; with this difference, that merchant-strangers paid an additional toll, viz. half as much again as was paid by natives. The *custuma parva et nova* were an impost of 3d. in the pound, due from merchant-strangers only, for all commodities as well imported as exported; which was usually called the *alien's duty*, and was first granted in 31 Edw. I. But these ancient hereditary customs, especially those on wool and woollfells, came to be of little account, when the nation became sensible of the advantages of a home manufacture, and prohibited the exportation of wool by statute 11 Edw. III. c. 1.

Other customs payable upon exports and imports were distinguished into subsidies, tonnage, poundage, and other imposts. Subsidies were such as were imposed by parliament upon any of the staple commodities before mentioned, over and above the *custuma antiqua et magna*: tonnage was a duty upon all wines imported, over and above the prisage and buttlerage aforesaid; poundage was a duty imposed *ad valorem*, at the rate of 12d. in the pound, on all other merchandize whatsoever: and the other imposts were such as were occasionally laid on by parliament, as circumstances and times required. These distinctions are now in a manner forgotten, except by the officers immediately concerned in this department; their produce being in effect all blended together, under the one denomination of the *customs*.

By these we understand, at present, a duty or subsidy paid by the merchant at the quay upon all imported as well as exported commodities, by authority of parliament; unless where, for particular national reasons, certain rewards, bounties or drawbacks, are allowed for particular exports or imports. The customs thus imposed by parliament are chiefly contained in two books of rates, set forth by parliamentary authority; one signed by Sir Harbottle Grimston, speaker of the house of commons in Charles II's time; and the other an additional one, signed by Sir Spencer Compton, speaker in the reign of George I. to which also subsequent additions have been made. Aliens pay a larger proportion than natural subjects, which is what is now generally understood by the aliens duty; to be exempted from which is one principal cause of the frequent applications to parliament for acts of naturalization.

These customs are then, we see, a tax immediately paid by the merchant, although ultimately by the consumer. And yet these are the duties felt least by the people: and, if prudently managed, the people hardly consider that they pay them at all. For the merchant

Customs.

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Comment.

Customs merchant is easy, being sensible he does not pay them for himself; and the consumer, who really pays them, confounds them with the price of the commodity; in the same manner as Tacitus observes, that the emperor Nero gained the reputation of abolishing the tax of the sale of slaves, though he only transferred it from the buyer to the seller; so that it was, as he expresses it, *remissum magis specie, quam vi: quia cum venditor pendere juberetur, in partem pretii emptoribus accrescebat*. But this inconvenience attends it on the other hand, that these imposts, if too heavy, are a check and cramp upon trade; and especially when the value of the commodity bears little or no proportion to the quantity of the duty imposed. This in consequence gives rise also to smuggling, which then becomes a very lucrative employment: and its natural and most reasonable punishment, viz. confiscation of the commodity, is in such cases quite ineffectual; the intrinsic value of the goods, which is all that the smuggler has paid, and therefore all that he can lose, being very inconsiderable when compared with his prospect of advantage in evading the duty. Recourse must therefore be had to extraordinary punishments to prevent it; perhaps even to capital ones: which destroys all proportion of punishment, and puts murderers upon an equal footing with such as are really guilty of no natural, but merely a positive, offence.

There is also another ill consequence attending high imposts on merchandize, not frequently considered, but indisputably certain; that the earlier any tax is laid on a commodity, the heavier it falls upon the consumer in the end; for every trader, through whose hands it passes, must have a profit, not only upon the raw material and his own labour and time in preparing it, but also upon the very tax itself, which he advances to the government; otherwise he loses the use and interest of the money which he so advances. To instance in the article for foreign paper. The merchant pays a duty upon importation, which he does not receive again till he sells the commodity, perhaps at the end of three months. He is therefore equally intitled to a profit upon that duty which he pays at the custom-house, as to a profit upon the original price which he pays to the manufacturer abroad; and considers it accordingly in the price he demands of the stationer. When the stationer sells it again, he requires a profit of the printer or bookseller upon the whole sum advanced by him to the merchants: and the bookseller does not fail to charge the full proportion to the student or ultimate consumer; who therefore does not only pay the original duty, but the profits of these three intermediate traders, who have successively advanced it for him. This might be carried much farther in any mechanical, or more complicated, branch of trade.

CUSTOM-HOUSE, an office established by the king's authority in the maritime cities, or port towns, for the receipt and management of the customs and duties of importation and exportation, imposed on merchandises, and regulated by books of rates.

CUSTOS BREVIUM, the principal clerk belonging to the court of common pleas, whose business it is to receive and keep all the writs made returnable in that court, filing every return by itself; and, at the end of each term, to receive of the prothonotaries all the records of the nisi prius, called the *postears*.

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CUSTOS ROTULORUM, an officer who has the custody of the rolls and records of the session of peace, and also of the commission of the peace itself.

He usually is some person of quality, and always a justice of the peace, of the quorum, in the county where he is appointed.

CUSTOS SPIRITUALIUM, he that exercises the spiritual jurisdiction of a diocese, during the vacancy of any see, which, by the canon-law, belongs to the dean and chapter; but at present, in England, to the archbishop of the province by prescription.

CUSTOS TEMPORALIUM, was the person to whom a vacant see or abbey was given by the king, as supreme lord. His office was, as steward of the goods and profits, to give an account to the escheator, who did the like to the exchequer.

CUT-A-FEATHER, in the sea-language. If a ship has too broad a bow, it is common to say, *she will not cut a feather*; that is, she will not pass through the water so swift as to make it foam or froth.

CUT PURSE, in law; if any person *clam & secrete*, and without the knowledge of another, cut his purse or pick his pocket, and steal from thence above the value of twelve pence, it is felony excluded clergy.

Cut-purses or *saccularii*, were more severely punished than common thieves by the Roman and Athenian laws.

CUT WATER, the sharp part of the head of a ship below the beak. It is so called because it cuts or divides the water before it comes to the bow, that it may not come too suddenly to the breadth of the ship, which would retard it.

CUTANEOUS, in general, an appellation given to whatever belongs to the cutis or skin. Thus, we say *cutaneous* eruptions; the itch is a *cutaneous* disease.

CUTH, or **CUTHAH** (anc. geog.) a province of Assyria, which, as some say, lies upon the Araxes, and is the same with Cush: but others take it to be the same with the country which the Greeks call *Susiana*, and which to this very day, says Dr Wells, is by the inhabitants called *Chusestan*. F. Calmet is of opinion that Cuthah and Scythia are the same place, and that the Cuthites who were removed into Samaria by Salmaneser (2 Kings xvii. 24.) came from Cush or Cuth, mentioned in Gen. ii. 13. See the article **CUSH**.—The Cuthites worshipped the idol Nergal. Id. ibid, 30. These people were transplanted into Samaria in the room of the Israelites, who before inhabited it. Calmet is of opinion, they came from the land of Cush, or Cuthah upon the Araxes; and that their first settlement was in the cities of the Medes, subdued by Salmaneser and the kings of Syria his predecessors. The scripture observes, that the Cuthites, upon their arrival in this new country, continued to worship the gods formerly adored by them beyond the Euphrates. Esarhaddon king of Assyria, who succeeded Senacherib, appointed an Israelitish priest to go thither, and instruct them in the religion of the Hebrews. But these people thought they might reconcile their old superstition with the worship of the true God. They therefore framed particular gods for themselves, which they placed in the several cities where they dwelt. The Cuthites then worshipped both the Lord and their false gods together, and chose the lowest of the people to make priests.

Cuticle
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Cutting.

priests of them in the high places; and they continued this practice for a long time. But afterwards they forsook the worship of idols, and adhered only to the law of Moses, as the Samaritans, who are descended from the Cuthites, do at this day.

CUTICLE, the scarf-skin. See ANATOMY, N^o 74.

CUTICULAR, the same with CUTANEOUS.

CUTIS, the skin. See ANATOMY, N^o 76.

CUTTER, a small vessel, commonly navigated in the channel of England. It is furnished with one mast, and rigged as a sloop. Many of these vessels are used in an illicit trade, and others are employed by government to take them; the latter of which are either under the direction of the admiralty or custom-house. See a representation of a cutter of this sort in the plate referred to from the article VESSEL.

CUTTER, is also a small boat used by ships of war.

CUTTER of the Tallies, an officer of the exchequer, whose business is to provide wood for the tallies, to cut or notch the sum paid upon them; and then to cast them into court, to be written upon. See TALLY.

CUTTING, a term used in various senses and various arts; in the general it implies a division or separation.

CUTTING is particularly used in heraldry, where the shield is divided into two equal parts, from right to left, parallel to the horizon, or in the fesse-way.

The word also is applied to the honourable ordinaries, and even to animals and moveables, when they are divided equally the same way; so, however, as that one moiety is colour, the other metal. The ordinaries are said to be cut, couped, when they do not come full to the extremities of the shield.

CUTTING, in chirurgery, denotes the operation of extracting the stone out of the bladder by section. See LITHOTOMY.

CUTTING in coinage. When the laminæ or plates of the metal, be it gold, silver, or copper, are brought to the thickness of the species to be coined, pieces are cut out, of the thickness, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been stamped on them. The instrument wherewith they cut, consists of two pieces of steel, very sharp, and placed over one another; the lower a little hollow, representing a mortar, the other a pestle. The metal put between the two, is cut out in the manner described under COINAGE.

Note. Medallions, where the relieve is to be great, are not cut, but cast or moulded.

CUTTING, in the manege, is when the horse's feet interfere; or when with the shoe of one foot he beats off the skin from the pastern joint of another foot. This is more frequent in the hind feet than the fore: the causes are either weariness, weakness in the reins, not knowing how to go, or ill shoeing.

CUTTING, in painting, the laying one strong lively colour over another, without any shade or softening. The cutting of colours has always a disagreeable effect.

CUTTING in wood, a particular kind of sculpture or engraving; denominated from the matter wherein it is employed.

It is used for various purposes; as for figured letters, head and tail-pieces of books; and even for schemes and other figures, to save the expences of en-

graving on copper; and the prints and stamps for paper, callicoes, linens, &c.

The invention of cutting in wood, as well as that in copper, is ascribed to a goldsmith of Florence; but it is to Albert Durer and Lucas they are both indebted for their perfection. See ENGRAVING, and PRINTING.

One Hugo de Carpi invented a manner of cutting in wood, by means whereof the prints appeared as if painted in clair-obscur. In order to this, he made three kinds of stamps for the same design; which were drawn, one after another, through the press for the same print: they were so conducted, as that one served for the grand lights, a second for the demi-teints, and a third for the outlines and the deep shadows.

The art of cutting in wood was certainly carried to a very great pitch above two hundred years ago; and might even vie, for beauty and justness, with that of engraving in copper. At present it is in a low condition, as having been long neglected, and the application of artists wholly employed on copper, as the more easy and promising province: not but that wooden cuts have the advantage of those in copper on many accounts; chiefly for figures and devices in books; as being printed at the same time and in the same press as the letters: whereas for the other, there is required a particular impression. In the representation of plants and flowers, and in designs for paper-hangings, where the outline only is wanted to be printed in a bold full manner, this method will be found cheaper and more effectual than the use of copper-plates.

The cutters in wood begin with preparing a plank or block of the size and thickness required, and very even and smooth on the side to be cut: for this, they usually take beech, pear-tree, or box; though the latter is the best, as being the closest, and least liable to be worm-eaten. The wood being cut into a proper form and size, should be planed as even and truly as possible: it is then fit to receive the drawing or chalking of the design to be engraved. But the effect may be made more apparent, and the ink, if any be used in drawing, be prevented from running, by spreading thinly on the surface of the wood white lead tempered with water, by grinding with a brush pencil, and afterwards rubbing it well with a fine linen rag whilst it is wet; and when it is dry, brushing off any loose or powdery part with a soft pencil.

On this block they draw their design with a pen or pencil, just as they would have it printed. Those who cannot draw their own design, as there are many who cannot, make use of a design furnished them by another; fastening it upon the block with paste made of flour and water, with a little vinegar or gum tragacanth; the strokes or lines turned towards the wood.

When the paper is dry, they wash it gently over with a sponge dipped in water, which done, they take off the paper by little and little, still rubbing it a little first with the tip of the finger; till at length there be nothing left on the block but the strokes of ink that form the design, which mark out so much of the block as is to be spared or left standing. Figures are sometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the surface of the wood. The rest they

Cutting.

Cuttings
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Cutts

cut off, and take away very curiously with the points of very sharp knives, or little chissels or gravers, according to the bigness or delicacy of the work: for they need no other instruments.

It differs from engraving in copper, because in the former, the impression comes from the prominent parts or strokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and easy than that of copper-plate: because they require only to be dipt in the printing-ink, and impressed on the object in the same manner and with the same apparatus as the letter-printing is managed; and for purposes that do not require great correctness, the impression is made by the hand only, a proper handle being fixed to the middle of the print, by which it is first dipped in the ink, spread by means of a brush on a block of proportionable size covered with leather; and then lifted up instantly, and dropped with some little force on the paper which is to receive the impression.

CUTTINGS, or slips, in gardening, the branches or sprigs of trees or plants, cut or slipped off to set again; which is done in any moist fine earth.

The best season is from August to April; but care is to be taken, when it is done, the sap be not too much in the top, lest the cut die before that part in the earth have root enough to support it: nor yet must it be too dry or scanty; the sap in the branches assisting it to take root.

In providing the cuttings, such branches as have joints, knots, or burrs, are to be cut off two or three inches beneath them, and the leaves to be stripped off so far as they are set in the earth. Small top branches, of two or three years growth, are fittest for this operation.

CUTTLE-FISH. See SEPIA. The bone of the cuttle-fish is hard on one side, but soft and yielding on the other; so as readily to receive pretty neat impressions from medals, &c. and afterwards to serve as a mould for casting metals, which thus take the figure of the original; the bone is likewise frequently employed for cleaning or polishing silver. This fish contains in a certain distinct vessel a fluid as black as ink: which it is said to shed when pursued, and thus to conceal itself by discolouring the water. The particular qualities of this liquor are not yet determined. Dr Leigh says, he saw a letter which had been written with it ten years before, and which still continued. Some report that the ancients made their ink from it; and others, that it is the basis of China, or Indian Ink; but both these accounts appear to have little foundation. Pliny, speaking of the inks made use of in his time, after observing that the cuttle-fish is in this respect of a wonderful nature, adds expressly, that ink was not made from it.

CUTTIS (John lord), a soldier of most hardy bravery in king William's wars, was son of Richard Cutts, Esq; of Matching in Essex; where the family were settled about the time of Henry VI. and had a great estate. He entered early into the service of the duke of Monmouth, was aide-de-camp to the duke of Lorrain in Hungary, and signalized himself in a very extraordinary manner at the taking of Buda by the Imperialists in 1686; which important place had been for near a century and a half in the hands of the

Turks. Mr Addison, in a Latin poem worthy of the Augustan age, plainly hints at Mr Cutts's distinguished bravery at that siege. Returning to England at the revolution, he had a regiment of foot; was created baron of Gowran in Ireland, Dec. 6. 1690; appointed governor of the Isle of Wight, April 14. 1693; was made a major-general; and, when the assassination project was discovered, in 1695-6, was captain of the king's guard. In 1698 he was complimented by Mr John Hopkins, as one to whom "a double crown was due," as a hero and a poet. He was colonel of the Coldstream, or second regiment of guards, in 1701; when Mr Steele, who was indebted to his interest for a military commission, inscribed to him his first work, "The Christian Hero." On the accession of queen Anne, he was made a lieutenant-general of the forces in Holland; commander in chief of the forces in Ireland, under the duke of Ormond, March 23. 1704-5; and afterwards one of the lords justices of that kingdom, to keep him out of the way of action; a circumstance which broke his heart. He died at Dublin, Jan. 26. 1706-7, and is buried there in the cathedral of Christ-church. He wrote a poem on the death of queen Mary; and published, in 1687, "Poetical exercises, written upon several occasions, and dedicated to her Royal Highness Mary Princess of Orange." It contains, besides the dedication signed J. Cutts, verses to that princess; a poem on Wisdom; another to Mr Waller on his commending it; seven more copies of verses (one of them called *La Muse Cavalier*, which had been ascribed to lord Peterborough, and as such mentioned by Mr Walpole in the list of that nobleman's writings), and 11 songs; the whole composing but a very thin volume; which is by no means so scarce as Mr Walpole supposes it to be. A specimen of his poetry (of which the five first lines are quoted by Steele in his fifth Tatler) is here added:

Only tell her that I love,
Leave the rest to her and fate;
Some kind planet from above
May perhaps her pity move;
Lovers on their stars must wait;
Only tell her that I love.

Why, oh, why should I despair?
Mercy's pictur'd in her eye:
If she once vouchsafe to hear,
Welcome hope, and welcome fear.
She's too good to let me die;
Why, oh, why should I despair?

CYATHUS, *κυαθος* (from the verb *κυειν*, to pour out), was a common measure among the Greeks and Romans, both of the liquid and dry kind. It was equal to an ounce, or the twelfth part of a pint. The cyathus was made with an handle like our punch-ladle. The Roman topers were used to drink as many *cyathi* as there were muses, i. e. nine; also as many as there were letters in the patron's name. Thus, they had modes of drinking similar to the modern health-drinking or toasting. They say, that the cyathus of the Greeks weighed 10 drachms; and Galen says the same; though elsewhere he says, that a cyathus contains 12 drachms of oil, 13 drachms and one scruple of wine, water, or vinegar, and 18 drachms of honey. Galen says, that among the Veterinarii the cyathus contained two ounces.

CYAXARES, son of Phraortes, was king of Media

Cutts.
||
Cyaxares.

Cyaxares
||
Cybele.

dia and Persia. He bravely defended his kingdom, which the Scythians had invaded. He made war against Alyattes king of Lydia; and subjected to his power all Asia beyond the river Halys. He died after a reign of 40 years, in the year of Rome 160.

CYAXARES II. is supposed by some to be the same as Darius the Mede. He was son of Astyages king of Media. He added seven provinces to his father's dominions, and made war against the Assyrians, whom Cyrus favoured.

CYBEBE, a name of Cybele, from *κυβηβαιν*, because in the celebration of her festivals men were driven to madness.

CYBELE, in Pagan mythology, the daughter of Cœlus and Terra, and wife of Saturn. She is supposed to be the same as Ceres, Rhea, Ops, Vesta, Bona Mater, Magna Mater, Berecynthia, Dindymene, &c. According to Diodorus, she was the daughter of a Lydian prince, and as soon as she was born she was exposed on a mountain. She was preserved by sucking some of the wild beasts of the forest, and received the name of Cybele from the mountain where her life had been preserved. When she returned to her father's court, she had an intrigue with Atys, a beautiful youth, whom her father mutilated, &c. All the mythologists are unanimous in mentioning the amours of Atys and Cybele. In Phrygia the festivals of Cybele were observed with the greatest solemnity. Her priests, called *Corybantes*, *Galli*, &c. were not admitted in the service of the goddess without a previous mutilation. In the celebration of the festivals, they imitated the manners of madmen, and filled the air with shrieks and howlings mixed with the confused noise of drums, tabrets, bucklers, and spears. This was in commemoration of the sorrow of Cybele for the loss of her favourite Atys. Cybele was generally represented as a robust woman far advanced in her pregnancy, to intimate the fecundity of the earth. She held keys in her hand, and her head was crowned with rising turrets, and sometimes with the leaves of an oak. She sometimes appears riding in a chariot drawn by two tame lions: Atys follows by her side, carrying a ball in his hand, and supporting himself upon a fir-tree which is sacred to the goddess. Sometimes she is represented with a scepter in her hand, with her head covered with a tower. She is also seen with many breasts, to show that the earth gives aliments to all living creatures; and she generally carries two lions under her arms. From Phrygia the worship of Cybele passed into Greece, and was solemnly established at Eleusis under the name of the *Eleusinian mysteries of Ceres*. The Romans, by order of the Sibylline books, brought the statue of the goddess from Pessinus into Italy; and when the ship which carried it had run on a shallow bank of the Tiber, the virtue and innocence of Claudia was vindicated in removing it with her girdle. It is supposed that the mysteries of Cybele were first known about 257 years before the Trojan war, or 1580 years before the Augustan age. The Romans were particularly superstitious in washing every year, on the 6th of the kalends of April, the shrine of this goddess in the waters of the river Almon. There prevailed many obscenities in the observation of the festivals; and the priests themselves were the

most eager to use indecent expressions, and to show their unbounded licentiousness by the impurity of their actions.

CYBELICUM MARMOR, a name given by the ancients to a species of marble dug in a mountain of that name in Phrygia. It was of an extremely bright white, with broad veins of bluish black.

CYCAS, in botany: A genus of plants belonging to the first natural order, *Palmeæ*. The fruit is a dry plum with a bivalved kernel. There is but one species described by Linnæus, viz. the circinalis, or sago-tree, which grows spontaneously in the East Indies, and particularly on the coast of Malabar. It runs up with a straight trunk to 40 feet or more, having many circles the whole length, occasioned by the old leaves falling off; for they standing in a circular order round the stem, and embracing it with their base, whenever they drop, they leave the marks of their adhesion behind. The leaves are pinnated, and grow to the length of seven or eight feet. The pinnæ or lobes are long, narrow, entire, of a shining green, all the way of a breadth, lance-shaped at the point, are closely crowded together, and stand at right angles on each side the midrib, like the teeth of a comb. The flowers are produced in long bunches at the footstalks of the leaves, and are succeeded by oval fruit, about the size of large plums, of a red colour when ripe, and a sweet flavour. Each contains a hard brown nut, enclosing a white meat, which tastes like a chestnut.

This is a valuable tree to the inhabitants of India, as it not only furnishes a considerable part of their constant bread, but also supplies them with a large article of trade. The body contains a farinaceous substance, which they extract from it and make into bread in this manner: they saw the body into small pieces, and after beating them in a mortar, pour water upon the mass; this is left for some hours to settle. When fit, it is strained through a cloth, and the finer particles of the mealy substance running through with the water, the gross ones are left behind and thrown away. After the farinaceous part is sufficiently subsided, the water is poured off, and the meal being properly dried, is occasionally made into cakes and baked. These cakes are said to eat nearly as well as wheaten bread, and are the support of the inhabitants for three or four months in the year.

The same meal more finely pulverized, and reduced into granules, is what is called *Sago*, which is sent into all parts of Europe, and sold in the shops as a great strengthener and restorative.

There is a sort of sago made in the West Indies, and is sent to Europe in the same manner as that from the East; but the West India sago is far inferior in quality to the other. It is supposed to be made from the pith of the areca oleracea. See ARECA.

The *brood boom* (or bread-tree) of the Hottentots, a plant lately discovered by professor Thunberg, is described as a new species of this genus, by the name of *cycas Caffra*, in the *Nova Acta Reg. Soc. Scient. Ups.* vol. ii. p. 283. tab. V. The pith, or *medulla*, which abounds in the trunk of this little palm, Mr Sparman informs us, is collected and tied up in dressed calf or sheep-skins, and then buried in the earth for the space of several weeks, till it becomes sufficiently

Cybeli-
cum.
Cycas.

Cyceon
||
Cyclamen.

mellow and tender to be kneaded up with water into a paste, of which they afterwards make small loaves or cakes, and bake them under the ashes. Other Hot-tentots, not quite so nice, nor endued with patience enough to wait this tedious method of preparing it, are said to dry and roast the pith or marrow, and afterwards make a kind of frumenty of it.

CYCEON, from *κνικειν*, "to mix;" a name given by the ancient poets and physicians to a mixture of meal and water, and sometimes of other ingredients. These constituted the two kinds of cyceon; the coarser being of the water and meal alone; the richer and more delicate composed of wine, honey, flour, water, and cheese. Homer, in the 11th Iliad, talks of cyceon made with cheese and the meal of barley mixed with wine, but without any mention either of honey or water; and Ovid, describing the draught of cyceon given by the old woman of Athens to Ceres, mentions only flour and water. Dioscorides understood the word in both these senses; but extolled it most in the coarse and simple kind: he says, when prepared with water alone, it refrigerates and nourishes greatly.

CYCINNIS, a Grecian dance, so called from the name of its inventor, one of the satyrs belonging to Bacchus. It consisted of a combination of grave and gay movements.

CYCLADES *INSULAE*; islands anciently so called, as Pliny informs us, from the *Cyclus* or orb in which they lie; beginning from the promontory Geraestum of Euboea, and lying round the island Delos, (Pliny).

Where they are, and what their number, is not so generally agreed. Strabo says, they were at first reckoned 12, but that many others were added: yet most of them lie to the south of Delos, and but few to the north, so that the middle or center, ascribed to Delos, is to be taken in a loose, not a geometrical sense. Strabo recites them after Artemidorus, as follows: Helena, Ceos, Cynthus, Seriphus, Melus, Siphus, Cimolus, Prepesinthus, Olearus, Naxus, Parus, Syrus, Myconus, Tenus, Andrus, Gyarus; but he excludes from the number Prepesinthus, Olearus, and Gyarus.

CYCLAMEN, *Sowbread*: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 21st order, *Precie*. The corolla is verticillated, with the tube very short, and the throat prominent; the berry is covered with the capsule. There are but two species; which, however, produce many beautiful varieties. They are low, herbaceous, flowery perennials of the tuberous rooted kind, with numerous, angular, heart-shaped, spotted, marbled leaves; with many fleshy foot-stalks six inches high, carrying monopetalous, five-parted reflexed flowers of various colours. All the varieties are extremely ornamental, and some of the flowers very fragrant. They may be planted in any of the common borders, but require to be sheltered from hard frosts by being covered with mats. They should also have a light dry soil, otherwise their roots are apt to rot. The species are propagated by seeds, and the particular varieties by dividing their roots.

The root of the cyclamen has, when fresh, an extremely acrimonious burning taste, which it loses almost entirely on being dried. It is recommended as

an errhine; in cataplasms for scirrhus and cancerous tumours; and internally as a cathartic, detergent, and aperient. It operates very slowly, but with great virulence, inflaming the fauces and intestines.

CYCLE, in chronology, a certain period or series of numbers, which regularly proceed from the first to the last, and then return again to the first, and so circulate perpetually. See *CHRONOLOGY*, n^o 26.

Cycle of Indiction, a period of 15 years, in use among the Romans. It has no connection with the celestial motion, but was instituted, according to Baronius, by Constantine; who having reduced the time which the Romans were obliged to serve to 15 years, he was consequently obliged every 15 years to impose, or *indicere* according to the Latin expression, an extraordinary tax for the payment of those who were discharged; and hence arose this cycle, which, from the Latin word *indicere*, was styled *indiction*.

Cycle of the Moon, called also the *golden number*, and the *Metonic cycle*, from its inventor Meton the Athenian, is a period of 19 years, which when they are completed, the new moons and full moons return on the same days of the month, so that on whatever days the new and full moons fall this year, 19 years hence they will happen on the very same days of the month, though not at the same hour, as Meton and the fathers of the primitive church thought; and therefore, at the time of the council of Nice, when the method of finding the time for observing the feast of Easter was established, the numbers of the lunar cycle were inserted in the kalendar, which, upon the account of their excellent use, were set in golden letters, and the year of the cycle called the *golden number* of that year.

Cycle of the sun, a revolution of 28 years, which being elapsed, the dominical or Sunday-letters return to their former place, and proceed in the same order as before, according to the Julian kalendar.

CYCLISUS, in surgery, an instrument in the form of a half moon, used in scraping the skull, in case of fractures on that part.

CYCLOID, a curve on which the doctrine of pendulums, and time-measuring instruments, in a great measure depends; Mr Huygens demonstrated, that from whatever point or height, a heavy body, oscillating on a fixed center, begins to descend, while it continues to move in a cycloid, the time of its falls or oscillations will be equal to each other. It is likewise demonstrable, that it is the curve of quickest descent, *i. e.* a body falling in it, from any given point above, to another not exactly under it, will come to this point in a less time than in any other curve passing through those two points.

CYCLOPÆDIA, or *ENCYCLOPÆDIA*, denotes the circle or compass of arts and sciences. A cyclopædia, say the authors of the French *Encyclopédie*, ought to explain as much as possible the order and connection of human knowledge. See *ENCYCLOPÆDIA*.

CYCLOPS, in fabulous history, the sons of Neptune and Amphitrite; the principal of whom were Brontes, Steropes, and Peracmon; but their whole number amounted to above an hundred. Jupiter threw them into Tartarus as soon as they were born; but they were delivered at the intercession of Tellus, and became

Cycle
||
Cyclops.

Cyclopte-
rus.

came the assistants of Vulcan. They were of prodigious stature, and had each only one eye, which was placed in the middle of their foreheads.

Some mythologists say, that the Cyclops signify the vapours raised in the air, which occasion thunder and lightning; on which account they are represented as forging the thunderbolts of Jupiter. Others represent them as the first inhabitants of Sicily, who were cruel, of a gigantic form, and dwelt round mount Ætna.

CYCLOPTERUS, the SUCKER, in ichthyology, a genus belonging to the order of amphibia nantes. The head is obtuse, and furnished with saw-teeth: there are four rays in the gills; and the belly-fins are connected together in an orbicular form. The species are,

1. The lumpus or lump-fish, grows to the length of 19 inches, and weighs seven pounds. The shape of the body is like that of the bream, deep and very thick, and it swims edge-ways. The back is sharp and elevated; the belly flat, of a bright crimson colour. Along the body there run several rows of sharp and bony tubercles, and the whole skin is covered with small ones. The pectoral fins are large and broad, almost uniting at their base. Beneath these is the part by which it adheres to the rocks, &c. It consists of an oval aperture, surrounded with a fleshy, muscular, and obtuse soft substance; edged with many small thread-appeadages, which concur as so many clasps. The tail and vent-fins are purple. By means of this part it adheres with vast force to any thing it pleases. As a proof of its tenacity, it hath been known, that in flinging a fish of this species just caught into a pail of water, it fixed itself so firmly to the bottom, that on taking the fish by the tail, the whole pail by that means was lifted, though it held some gallons, without once making the fish quit its hold. These fish resort in multitudes during spring to the coast of Sutherland near the Ord of Caithness. The seals which swarm beneath, prey greatly upon them, leaving the skins; numbers of which, thus emptied, float ashore at that season. It is easy to distinguish the place where the seals are devouring this or any other unctuous fish, by a smoothness of the water immediately above the spot. The fact is now established; it being a tried property of oil, to still the agitation of the waves and render them smooth. Great numbers of lump-fish are found in the Greenland seas during the months of April and May, when they resort near the shore to spawn. Their roe is remarkably large, which the Greenlanders boil to a pulp and eat. They are extremely fat, which recommends them the more to the natives, who admire all oily food. They call them *nipsets* or *cat-fish*, and take quantities of them during the season. The fish is sometimes eaten in England, being stewed like carp; but is both flabby and insipid.

2. The liparis takes the name of *sea-snail* from the soft and unctuous texture of its body, resembling that of the land-snail. It is almost transparent, and soon dissolves and melts away. It is found in the sea near the mouths of great rivers, and hath been seen full of spawn in January. The length is five inches: the colour a pale brown, sometimes finely streaked with a darker. Beneath the throat is a round depression of

a whitish colour like the impression of a seal, surrounded by twelve small pale yellow tubercles, by which probably it adheres to the stones like the other species.

3. The lesser sucking-fish is found in different parts of the British seas. It is about four inches in length; the skin without scales, slippery, and of a dusky colour. It hath also an apparatus for adhering to stones and rocks similar to the others.

CYDER, or CIDER, an excellent drink made of the juice of apples, especially of the more curious table kinds; the juice of these being esteemed more cordial and pleasant than that of the wild or harsh kinds. In making this drink, it hath long been thought necessary, in every part of England, to lay the harder cyder-fruits in heaps for some time before breaking their pulps; but the Devonshire people have much improved this practice. In other countries, the method is to make these heaps of apples in a house, or under some covering inclosed on every side. This method hath been found defective, because, by excluding the free air, the heat soon became too violent, and a great perspiration ensued, by which in a short time the loss of juices was so great, as to reduce the fruit to half their former weight, attended with a general rotteness, rancid smell, and disagreeable taste. In the South-hams, a middle way has been pursued, to avoid the inconveniences and loss attending the above. They make their heaps of apples in an open part of an orchard, where, by the means of a free air and less perspiration, the desired maturity is brought about, with an inconsiderable waste of the juices and decay of the fruit entirely free of rankness; and though some apples rot even in this manner, they are very few, and are still fit for use; all continue plump and full of juices, and very much heighten the colour of cyders, without ill taste or smell.

In pursuing the Devonshire method it is to be observed, 1. That all the promiscuous kinds of apples that have dropped from the trees, from time to time, are to be gathered up and laid in a heap by themselves, and to be made into cyder after having so lain about ten days. 2. Such apples as are gathered from the trees, having already acquired some degree of maturity, are likewise to be laid in a heap by themselves for about a fortnight. 3. The later hard fruits, which are to be left on the trees till the approach of frost is apprehended, are to be laid in a separate heap, where they are to remain a month or six weeks, by which, notwithstanding frost, rain, &c. their juices will receive such a maturation, as will prepare them for a kindly fermentation, and which they could not have attained on the trees by means of the coldness of the season.

It is observable, that the riper and mellow the fruits are at the time of collecting them into heaps, the shorter should be their continuance there; and on the contrary, the harsher, immaturer, and harder they are, the longer they should rest.

These heaps should be made in an even and open part of an orchard, without any regard to covering from rain, dews, or what else may happen during the apples staying there; and whether they be carried in and broke in wet or dry weather, the thing is all the same. If it may be objected, that during their having lain

Cyder.

Cyder
||
Cydnus.

lain together in the heap, they may have imbibed great humidity, as well from the air as from the ground, rain, dews, &c. which are mixed with their juices; the answer is, this will have no other effect than a kindly diluting, natural to the fruit, by which means a speedier fermentation ensues, and all heterogeneous humid particles are thrown off.

The apples are then ground, and the pummice is received in a large open-mouthed vessel, capable of containing as much thereof as is sufficient for one making, or one cheese. Though it has been a custom to let the pummice remain some hours in the vessel appropriated to contain it, yet this practice is by no means commendable; for if the fruits did not come ripe from the trees, or otherwise matured, the pummice remaining in the vat too long, will acquire such harshness and coarseness from the skins as is never to be got rid of; and if the pummice is of well ripened fruit, the continuing too long there will occasion it to contract a sharpness that very often is followed with want of spirit and pricking; nay, sometimes it even becomes vinegar, or always continues of a wheyish colour; all which proceeds from the heat of fermentation that it almost instantly falls into on lying together; the pummice therefore should remain no longer in the vat than until there may be enough broke for one pressing, or that all be made into a cheese, and pressed the same day it is broken. See farther the article HUSBANDRY, n° 227—237.

In Plate CLIV. is a perspective view of the cyder-press and apple-mill. A, B, the bottom or lower beam; C, D, the upper beam; 5, 6, 7, 8, 9, the uprights; 4, 4, *e, e*, spurs; Z, 2, 12, braces, or cross-pieces; *a, b*, capitals; X, blocks; *g*, the screw; E, the back or receiver; F, the cheese or cake of pummice, placed on the stage or bason; G, the stage or bason; 10, 10, beams that support the pieces of which the bason is composed; 11, perpendicular pieces for supporting these beams; H, the buckler; R, S, Q, a circular trough of the apple-mill; T, L, V, compartments or divisions, for different sorts of apples; M, the mill-stone; L, M, axis of the mill-stone; N, the spring-tree bar.

CYDER-Spirit, a spiritous liquor drawn from cyder by distillation, in the same manner as brandy from wine. The particular flavour of this spirit is not the most agreeable, but it may with care be divested wholly of it, and rendered a perfectly pure and insipid spirit upon rectification. The traders in spiritous liquors are well enough acquainted with the value of such a spirit as this: they can give it the flavours of some other kinds, and sell it under their names, or mix it in large proportion with the foreign brandy, rum and arrack, in the sale, without any danger of a discovery of the cheat.

CYDER-Wine. See HUSBANDRY, n° 239.

CYDERKIN. See HUSBANDRY, n° 238.

CYDIAS, a painter who made a painting of the Argonauts in the 11th Olympiad. This celebrated piece was bought by the orator Hortensius for 164 talents.

CYDNUS (anc. geog.), a river of Cilicia; rising in mount Taurus, to the north of Tarsus, through whose middle it ran, in a very clear and cold stream, which had almost proved fatal to Alexander on bathing in it; falling into the sea at a place called Rheg-

ma, a breach, the sea breaking in there, and affording the people of Tarsus a station or port for their ships. The water of the Cydnus is commended by Strabo, as of service in nervous disorders and the gout.

CYDONIA (anc. geog.), one of the three most illustrious cities of Crete, situated in the north-west of the island, with a locked port, or walled round. The circumstances of the founding of Cydon are uncertain. Stephen of Byzantium says, that it was at first named Apollonia from Cydon the son of Apollo. Pausanias ascribes the founding of it to Cydon the son of Tegetus, who travelled into Crete. Herodotus affirms, that it was founded by the Samians, and that its temples were erected by them. Alexander, in the first book of the Cretans, informs us, that it received its name from Cydon the son of Mercury. Cydon was the largest city in the island; and was enabled to hold the balance between her contending neighbours. She sustained some famous sieges. Phaleucus, general of the Phoceans, making an expedition into Crete with a fleet and a numerous army, invested Canea both by sea and land; but lost his army and his life before its walls. In succeeding times, when Metellus subdued the island, he assailed Cydon with all his forces; and after combating an obstinate resistance, subjected it to the power of Rome. Cydon occupied the present situation of Canea; only extending half a league farther towards St Odera; where on the sea-shore the remains are still to be seen of some ancient walls which appear to have been of a very solid construction. See Canea.

CYDONIA, the QUINCE; so called from Cydon, a town of Crete, famous for its abounding with this fruit. Linnæus has joined this genus to the apple and pear; but as there is such a remarkable difference between the fruits, we follow Mr Miller, who treats the quince as a genus by itself.

Species. 1. The oblonga, with an oblong fruit, lengthened at the base. 2. The maliforma, with oval leaves, woolly on their under side, and lengthened at their base. 3. The lusitanica, with obverse oval leaves, woolly on their upper side. There are some other varieties of this fruit propagated in fruit-gardens, and in the nurseries for sale: one of which is a soft eatable fruit, another very astringent, and a third with a very small fruit cottony all over, which is scarce worth keeping. These Mr Miller supposed to be feminal variations, but the three others to be distinct species. The Portugal quince is the most valuable; its pulp turns to a fine purple when stewed or baked, and becomes much softer and less austere than the others; so is much fitter for making marmalade. The trees are all easily propagated, either by layers, suckers, or cuttings; which must be planted in a moist soil. Those raised from suckers are seldom so well rooted as those which are obtained from cuttings or layers, and are subject to produce suckers again in greater plenty; which is not so proper for fruit-bearing trees. These trees require very little pruning: the chief thing to be observed is, to keep their stems clear from suckers, and cut off such branches as cross each other: likewise all upright luxuriant shoots from the middle of the tree should be taken off, that the head may not be too much crowded with wood, which is of ill consequence to all fruit-trees. These sorts may also be propagated by budding or grafting upon stocks raised by

Cydonia.

Cygnus
||
Cymbal.

by cuttings; so that the best sorts may be cultivated this way in greater plenty than by any other method. These are also in great esteem to bud or graft pears upon; which for summer or autumn fruits are a great improvement to them, especially those designed for walls and espaliers; for the trees upon these stocks do not shoot so vigorously as those upon free-stocks, and therefore may be kept in less compass, and sooner produce fruit: but hard winter fruits do not succeed so well upon these stocks, their fruit being subject to crack, and are commonly stony, especially all the breaking pears: therefore these stocks are only fit for melting pears and a moist soil.

CYGNUS, or SWAN, in ornithology. See ANAS.

CYGNUS, the SWAN in astronomy, a constellation of the northern hemisphere, between Lyra and Cepheus. The stars in the constellation Cygnus, in Ptolemy's catalogue, are 19; in Tycho's 18; in Hevelius's 47; in the Britannic Catalogue 81.

CYLINDER, in geometry, a solid body supposed to be generated by the rotation of a parallelogram.

Rolling, or Loaded CYLINDER, a cylinder which rolls up an inclined plane; the phenomena of which are explained under MECHANICS.

CYLINDROID, in geometry, a solid body approaching to the figure of a cylinder, but differing from it in some respects, as having the bases elliptical, but parallel and equal.

CYLINDRUS, in natural history, the name of a genus of shell-fish, of which there are many elegant and precious species.

CYMA, in botany, the tender stalks which herbs send forth in the beginning of the spring, particularly those of the cabbage kind.

CYMA, or CYMATIUM, in architecture, a member or moulding of the cornice, the profile of which is waved, that is, concave at top, and convex at bottom.

CYMBAL, *κymbalon*, a musical instrument in use among the ancients. The cymbal was made of brass, like our-kettle drums, and, as some think, in their form, but smaller, and of different use. Ovid gives cymbals the epithet of *genialia*, because they were used at weddings and other diversions.

Cassiodorus and Isidore call this instrument *acetabulum*, the name of a cup or cavity of a bone wherein another is articulated; and Xenophon compares it to a horse's hoof; whence it must have been hollow; which appears, too, from the figure of several other things denominated from it; as a basin, caldron, goblet, cask, and even a shoe, such as those of Empedocles, which were of brass.

In reality, the ancient cymbals appear to have been very different from our kettle drums, and their use of another kind: to their exterior cavity was fastened a handle; whence Pliny compares them to the upper part of the thigh, and Rabanus to phials.

They were struck against one another in cadence, and made a very acute sound. Their invention was attributed to Cybele; whence their use in feasts and sacrifices: setting aside this occasion, they were seldom used but by dissolute and effeminate people. M. Lampe, who has written expressly on the subject, attributes the invention to the Curetes, or inhabitants of mount Ida in Crete; it is certain these, as well as the Cory-

bantes or guards of the kings of Crete, and those of Rhodes and Samothracia, were reputed to excel in the music of the cymbal.

The Jews had their cymbals, or at least instruments which translators render cymbals; but as to their matter and form, critics are still in the dark. The modern cymbal is a mean instrument, chiefly in use among vagrants, gypsies, &c. It consists of steel wire, in a triangular form, whereon are passed five rings, which are touched and shifted along the triangle with an iron rod held in the left hand, while it is supported in the right by a ring, to give it the freer motion. Durandus says, that the monks used the word *cymbal* for the cloister-bell, used to call them to the refectory.

CYME (anc. geog.), a city built by Pelops on his return from Greece. Cyme the Amazon gave it name, on expelling the inhabitants, according to Mela. Latin authors, as Nepos, Livy, Mela, Pliny, Tacitus, retain the appellation *Cyme*, after the Greek manner. It stood in *Æolia*, between Myrina and Phocæa (Ptolemy); and long after, in Peutinger's map, is set down nine miles distant from Myrina.—From this place was the Sybilla Cumæa, called *Erythraea*, from *Erythræ*, “a neighbouring place.” It was the country of Ephorus. Hesiod was a Cumean originally (Stephanus); his father coming to settle at Ascra in Bœotia.

CYMENE, in botany, a name given by the ancient Greeks to a plant with which they used to dye woollen things yellow, and with which the women of those times used also to tinge the hair yellow, that being the favourite colour in those ages. The *cymene* of the Greeks is evidently the same plant with the *lutea herba* of the Latins; or what we call *dyer's weed*. See RESEDA.

CYNÆGIRUS, an Athenian, celebrated for his extraordinary courage. He was brother to the poet Æschylus. After the battle of Marathon he pursued the flying Persians to their ships, and seized one of their vessels with his right hand, which was immediately severed by the enemy. Upon this he seized the vessel with his left hand, and when he had lost that also, he still kept his hold with his teeth.

CYNANCHE, a species of quinzy, in which the tongue is inflamed and swelled, so that it hangs out beyond the teeth.

CYNANCHUM, BASTARD DOGSBANE: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 30th order, *Contortæ*. The nectarium is cylindrical and quinque-dentated. There are six species; of which the following are the most remarkable. 1. The acutum, commonly called *Montpelier scammony*; and, 2. The monspeliacum, or round-leaved Montpelier scammony. They abound with a milky juice like the spurge, which issues out wherever they are broken; and this milky juice when concreted has frequently been sold for scammony. These plants propagate so fast by their creeping roots, that few people care to admit them into gardens.

CYNARA, the ARTICHOKE: A genus of the polygamia æqualis order, belonging to the syngenesia class of plants. The calyx is dilated, imbricated with carnos squamæ, and emarginated with a sharp point.

Of

Cyme
||
Cynara.

Gynara.

Of this genus there are four species, but only two are cultivated for use.

1. The scolymus, or garden artichoke, hath large, thick, perennial roots, crowned by a considerable cluster of large pennatifid, erect leaves, two or three feet long. In the middle are upright stalks rising a yard high, on the top of which is a large round scaly head, composed of numerous, oval, calycinal scales, inclosing the florets, sitting on a broad fleshy receptacle, which, with the fleshy base of the scales, is the only eatable part of the plant. The varieties of this species are, (1.) The conical green-headed French artichoke, having the small leaves terminated by spines, a tall stalk, the head somewhat conical, and of a light green colour, with the scales pointed at top, opening and turning outward. (2.) The globular headed red Dutch artichoke, having leaves without spines, a strong stalk, the head large, globular, a little compressed at top, and of a reddish-green colour; broad obtuse scales emarginated at top, growing close, and turning inward. Of these varieties the last is deservedly the most esteemed, both on account of its superiority in size and the agreeableness of its flavour. Both varieties are perennial in their root: but the leaves and fruit-stem die to the ground in winter; and their roots remaining, send up fresh leaves and stems every summer, producing a supply of artichokes for 20 years if required. The flowers and seed of all the plants of this genus are produced in the centre of the head; the scales of which are the proper calyx of the flower, which consists of numerous small bluish florets, succeeded by downy seeds sitting naked on the receptacle.

2. The cardunculus, or cardoon, greatly resembles the artichoke, but is of larger and more regular growth; the leaves being more upright, taller, broader, and more regularly divided; and the stalks of the leaves blanched are the only eatable parts of the plant.

Culture. Both the varieties of the artichoke are propagated by slips or suckers, arising annually from the stool or root of the old plants in spring, which are to be taken from good plants of any present plantation in March or the beginning of April, and planted in the open quarter of the kitchen-garden, in rows five feet asunder: and they will produce artichokes the same year in autumn. It should, however, be remarked, that though artichokes are of many years duration, the annual produce of their fruit will gradually lessen in the size of the eatable parts after the third or fourth year, so that a fresh plantation should be made every three or four years. The cardoon is a very hardy plant, and prospers in the open quarters of the kitchen-garden. It is propagated by seed sowed annually in the full ground in March; either in a bed for transplantation, or in the place where they are designed to remain. The plants are very large, so must stand at considerable distances from one another. By this means you may have some small temporary crops between the rows, as of lettuce, spinach, endive, cabbage, savoy, or brocoli plants. In the latter end of September, or in October, the cardoons will be grown very large, and their footstalks have acquired a thick substance; you must then tie up the leaves of each plant, to admit of earthing them closely all round for blanching, which will take up six or eight weeks; and thus the plants will come

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in for use in November and December, and continue all winter.

CYNÆUS of Thessaly, the scholar of Demosthenes, flourished 275 years before Christ. Pyrrhus had so high an esteem for him, that he sent him to Rome to solicit a peace; and so vast was his memory, that the day after his arrival he saluted all the senators and knights by name. Pyrrhus and he wrote a Treatise of War, quoted by Tully.

CYNICS, a sect of ancient philosophers, who valued themselves upon their contempt of riches and state, arts and sciences, and every thing, in short, except virtue or morality.

The cynic philosophers owe their origin and institution to Antisthenes of Athens, a disciple of Socrates; who being asked of what use his philosophy had been to him, replied, "It enables me to live with myself." Diogenes was the most famous of his disciples, in whose life the system of this philosophy appears in its greatest perfection. He led a most wretched life, a tub having served him for a lodging, which he rolled before him wherever he went. Yet he was nevertheless not the more humble on account of his ragged cloak, bag, and tub; for one day entering Plato's house, at a time when there was a splendid entertainment there for several persons of distinction, he jumped upon a very rich couch in all his dirt, saying, "I trample on the pride of Plato." "Yes (replied Plato), but with great pride, Diogenes." He had the utmost contempt for all the human race; for he walked the streets of Athens at noon day with a lighted lantern in his hand, telling the people, "He was in search of a man." Amongst many excellent maxims of morality, he held some very pernicious opinions; for he used to say, that the uninterrupted good fortune of Harpalus, who generally passed for a thief and a robber, was a testimony against the gods. He regarded chastity and modesty as weaknesses; hence Laertius observes of him, that he did every thing openly, whether it belonged to Ceres or Venus; though he adds, that Diogenes only ran to an excess of impudence to put others out of conceit with it. But impudence was the characteristic of these philosophers; who argued, that what was right to be done, might be done at all times and in all places. The chief principle of this sect in common with the stoics, was, that we should follow nature. But they differed from the stoics in their explanation of that maxim; the cynics being of opinion, that a man followed nature that gratified his natural motions and appetites; while the stoics understood right reason by the word nature.

CYNIC-SPASM, a kind of convulsion, wherein the patient imitates the howlings of dogs.

CYNIPS, in zoology, a genus of insects belonging to the hymenoptera order. The mouth is armed with jaws, but has no proboscis: the sting is spiral, and mostly concealed within the body. The quercus folii, or oak-leaf cynips, is of a burnished shining brown colour. The antennæ are black; the legs and feet of a chestnut-brown; and the wings white, but void of marginal spots. It is in the little smooth, round, hard galls, found under the oak-leaves, generally fastened to the fibres, that this insect is produced, a single one in each gall. These latter are ligneous, of a hard compact

Cynæus

Cynips.

Cynips.

Cynoccephalus.
||
Cynofarges.

substance, formed like the rest, by the extravasation of the sap of the leaf, occasioned by the puncture of the gall-fly when it deposits its eggs. Sometimes, instead of the cynips, there is seen to proceed from the gall a larger insect of a brown colour, which is an ichneumon. This ichneumon is not the real inmate of the gall, or he that formed it. He is a parasite, whose mother deposited her egg in the yet tender gall; which, when hatched, brings forth a larva that destroys the larva of the cynips, and then comes out when it has undergone its metamorphosis and acquired its wings.

The quercus gemmæ, or oak-bud cynips, is of a very dark green, slightly gilded: its antennæ and feet are of a dun colour, rather deep. It deposits its eggs in the oak-buds, which produces one of the finest galls, leafed like a rose-bud beginning to blow. When the gall is small, that great quantity of leaves is compressed, and they are set one upon another like the tiles of a roof. In the centre of the gall there is a kind of ligneous kernel, in the middle of which is a cavity; and in that is found the little larva, who feeds there, takes its growth, undergoes its metamorphosis, and breaks through the inclosure of that kind of cod in order to get out. The whole gall is often near an inch in diameter, sometimes more when dried and displayed; and it holds to a branch by a pedicle.

There are a great number of other species.

CYNOCEPHALUS, in zoology, the trivial name of a species of SIMIA.

CYNOGLOSSUM, HOUND'S TONGUE: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 41st order, *Asperifoliae*. The corolla is funnel-shaped, with its throat closed up by little arches formed in it; the seeds depressed, and affixed to the style or receptacle only on their inner side. There are eight species, none of them remarkable for their beauty. The root of one of them, viz. the officinale, or common greater hound's tongue, was formerly used in medicine, and supposed to possess narcotic virtues; but it is discarded from the present practice. The smell of the whole plant is very disagreeable. Goats eat it: sheep, horses, and swine refuse it.

CYNOMETRA, in botany: A genus of the monogynia order, belonging to the decandria class of plants: and in the natural method ranking with those of which the order is doubtful. The calyx is tetraphyllous; the antheræ bifid at top; the legumen carnos, crescent-shaped, and monospermous.

CYNOMORIUM, in botany: A genus of the monandria order, belonging to the monœcia class of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The male calyx is an imbricated catkin: there is no corolla: the calyx of the female is in the same catkin; no corolla; one style; and one roundish seed.

CYNOPHONTIS, in antiquity: A festival observed in the dog days at Argos, and so called *απο της κυνας φονιης*, i. e. from killing dogs; because it was usual on this day to kill all the dogs they met with.

CYNOREXY, an immoderate appetite, to the degree of a disease, called also *fames canina* and *bulimy*.

CYNOSARGES, a place in the suburbs of Athens, named from a white or swift dog, who snatched away part of the sacrifice offering to Hercules. It had a

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gymnasium, in which strangers or those of the half-blood performed their exercises; the case of Hercules, to whom the place was consecrated. It had also a court of judicature, to try illegitimacy, and to examine whether persons were Athenians of the whole or half blood. Here Antisthenes set up a new sect of philosophers called *Cynics*, either from the place, or from the inarling or the impudent disposition of that sect.

CYNOSCEPHALÆ (anc. geog.), a place in Thessaly near Scotussa; where the Romans, under Q. Flaminius, gained a great victory over Philip, son of Demetrius king of Macedon. These Cynoscephalæ are small tops of several equal eminences; named from their resemblance to dogs heads, according to Plutarch.

CYNOSSEMA, the tomb of Hecuba, on the promontory Mastusia, over against Sigeum, in the south of the Chersonesus Thracia; named either from the figure of a dog, to which she was changed, or from her sad reverse of fortune (Pliny, Mela).

CYNOSURA, in astronomy, a denomination given by the Greeks to *ursa minor*, or "the little bear," by which sailors steer their course. The word is formed of *κυνος*, q. d. the dog's tail. This is the constellation next our pole, consisting of seven stars; four whereof are disposed like the four wheels of a chariot, and three lengthwise representing the beam: whence some give it the name of the *chariot*, or *Charles's wain*.

CYNOSURA, *Cynofuræ*, or *Cynofuris*, (anc. geog.) a place in Laconica; but whether maritime or inland, uncertain. Here Æsculapius, being thunderstruck, was buried (Cicero).

CYNOSURA was also the name of the promontory of Marathon in Attica, obverted to Eubœa.

CYNOSURA, in mythology, a nymph of Ida in Crete. She nursed Jupiter, who changed her into a star which bears the same name. It is the same as the *ursa minor*.

CYNOSURUS, in botany: A genus of the digynia order, belonging to the triandria class of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx is bivalved and multiflorous; the receptacle proper, unilateral, and foliaceous. There are ten species, four of which are natives of Britain, viz. the cristatus, or crested dog-tail-grass; the echinatus, or rough dog-tail-grass; the cæruleus, or blue dog-tail-grass; and the paniceus, or bearded dog-tail-grass.

CYNTHIUS and CYNTHIA, in mythology, surnames of Apollo and Diana, derived from *Cynthia*, the name of a mountain in the middle of the island of Delos.

CYNTHUS (anc. geog.), a mountain of the island Delos, so high as to overshadow the whole island. On this mountain Latona brought forth Apollo and Diana: hence the epithet *Cynthius* (Virgil), and *Cynthia* (Lucan, Statius).

CYNURIA, or CYNURIUS *Ager*, (anc. geog.) a district of Laconica, on the confines of Argolis. A territory that proved a perpetual bone of contention between the Argives and Spartans (Thucydides). For the manner of deciding the dispute, see *THYREA*.

CYPERUS, in botany: A genus of the monogynia order, belonging to the triandria class of plants:

4. L.

and

Cynoscephalæ.
||
Cyperus.

Cyphon
||
Cyprianus.

and in the natural method ranking under the 3d order, *Calamariae*. The glumes are paleaceous, and imbricated towards each side; the corolla is wanting, and there is one naked seed. There are 20 species; the only remarkable are the round and the long sweet cyperus. The former is a native of the East Indies, and grows by the sides of rivulets, ditches, and the like. The root is knotty, wrapped round with fibrous strings not easy to break, of a brown colour without, and grey within; of a pleasant scent, especially when fresh and well dried; the leaves are green, and resemble those of the reed and leek. The latter, commonly called *English* or *Flemish cyperus*, grows in the water, and along banks and river sides. Its root is as thick as an olive, full of little knots or specks, of an oblong figure, grey colour, sweet and somewhat sharp taste, and almost without smell when it is newly taken out of the ground.

The roots of both plants are esteemed cordial, diuretic, and cephalic, resisters of poisons, and expellers of wind. Long cyperus is much used by perfumers and glovers.

CYPHON, in antiquity, a kind of punishment used by the Athenians. It was a collar made of wood; so called because it constrained the criminal who had this punishment inflicted on him to bow down his head.

CYPHONISM, CYPHONISMUS, from *κυφον*, which has various significations; derived from *κυφος*, *crooked*: a kind of torture or punishment in use among the ancients.

The learned are at a loss to determine what it was. Some will have it to be that mentioned by St Jerome in his Life of Paul the Hermit, chap 2. which consisted in smearing the body over with honey, and thus exposing the person, with his hands tied, to the warm sun to invite the flies and other vermin to persecute him.

CYPRÆA, or GOWRIE, in zoology, a genus of insects belonging to the order of vermes testacea. It is an animal of the limax or snail kind; the shell is one involuted, subovated, obtuse, smooth valve. The aperture on each side is linear, longitudinal, and toothed. There are 44 species, distinguished by the form of their shells. The pediculus, or common gowrie, is represented on Plate CLIV.

This genus is called *cypræa* and *venerea* from its being peculiarly dedicated to Venus, who is said to have endowed a shell of this genus with the powers of a *remora*, so as to impede the course of the ship which was sent by Periander tyrant of Corinth, with orders to castrate the young nobility of Corcyra.

CYPRESS. See CUPRESSUS.

CYPRIANUS (Thascius-Cæcilius), a principal father of the Christian church, was born at Carthage in Africa, at the latter end of the second or beginning of the third century. We know nothing more of his parents than that they were heathens; and he himself continued such till the last 12 years of his life. He applied himself early to the study of oratory; and some of the ancients, particularly Lactantius, inform us, that he taught rhetoric in Carthage with the highest applause. Cyprian's conversion is fixed by Pearson to the year 246; and was at Carthage, where, as St Jerome observes, he had often employed his rhetoric in the defence of paganism. It was brought about by one Cæcilius, a priest of the church of Car-

thage, whose name Cyprian afterwards took; and between whom there ever after subsisted so close a friendship, that Cæcilius at his death committed to Cyprian the care of his family. Cyprian was also a married man himself; but as soon as he was converted to the faith, he resolved upon a state of continence, which was thought a high degree of piety, as not being yet become general. Being now a Christian, he was to give the usual proof of the sincerity of his conversion; and that was by writing against paganism and in defence of Christianity. With this view he composed his piece *De Gratia Dei*, or "concerning the grace of God," which he addressed to Donatus. It is a work of the same nature with the Apologetic of Tertullian, and the Octavius of Minutius Felix. He next composed a piece *De Idolorum Vanitate*, or "upon the vanity of idols." Cyprian's behaviour, both before and after his baptism, was so highly pleasing to the bishop of Carthage, that he ordained him a priest a few months after. It was rather irregular to ordain a man thus in his very noviciate; but Cyprian was so extraordinary a person, and thought capable of doing such singular service to the church, that it seemed allowable in this case to dispense a little with the form and discipline of it. For besides his known talents as a secular man, he had acquired a high reputation of sanctity since his conversion; having not only separated himself from his wife, as we have observed before, which in those days was thought an extraordinary act of piety, but also consigned over all his goods to the poor, and given himself up entirely to the things of God. It was on this account no doubt, too, that when the bishop of Carthage died the year after, that is, in the year 248, none was judged so proper to succeed him as Cyprian. The quiet and repose which the Christians had enjoyed during the last 40 years, had, it seems, greatly corrupted their manners; and therefore Cyprian's first care, after his advancement to the bishopric, was to correct disorders and reform abuses. Luxury was prevalent among them; and many of their women were not so strict as they should be, especially in the article of dress. This occasioned him to draw up his piece *De habitu virginum*, or "concerning the dress of young women;" in which, besides what he says on that particular head, he inculcates many lessons of modesty and sobriety. In the year 249, the emperor Decius began to issue out very severe edicts against the Christians, which particularly affected those upon the coast of Africa; and in the beginning of 250, the heathens, in the circus and amphitheatre of Carthage, insisted loudly upon Cyprian's being thrown to the lions: a common method of destroying the primitive Christians. Cyprian upon this withdrew from his church at Carthage, and fled into retirement, to avoid the fury of the persecutions. He wrote in the place of his retreat, pious and instructive letters to those who had been his hearers; and also to the *libellatici*, a name by which those pusillanimous Christians were called, who procured certificates of the heathen magistrates, to show that they had complied with the emperor's orders in sacrificing to idols. At his return to Carthage, he held several councils on the repentance of those who had fallen during this persecution, and other points of discipline; he opposed the schemes of Navatus and Novatianus;

Cyprinus Novatianus, and contended for the rebaptizing of those who had been baptized by heretics. At last he died a martyr in the persecution of Valerian and Gallienus, in 258. Cyprian wrote 81 letters, and several treatises. The best edition of his works are those of Pamelius in 1568; of Rigaltius in 1648; and of Oxford in 1682. His works have also been translated into English by Dr Marshall.

CYPRINUS, in ichthyology; a genus of fishes, belonging to the order of abdominales. The mouth is toothless; there are three rays in the gills; the body is smooth and white; and the belly-fins have frequently nine rays. There are 31 species, principally distinguished by the number of rays in the vent-fin. The most remarkable are,

1. The carpio, or carp. This was introduced into England about the year 1514, by Leonard Maschal, to whom we are also indebted for that excellent apple the *pepin*. Russia wants these fish at this day. Sweden has them only in the ponds of people of fashion. They chiefly abound in the rivers and lakes of Polish Prussia, where they are sometimes taken of a vast size. They are there a great article of commerce, and sent in well-boats to Sweden and Russia. The merchants purchase them out of the waters, of the noblesse of the country, who draw a good revenue from this article. The ancients do not separate the carp from the sea-fish. They are sometimes found in the harbour of Dantzic between the town and a place called *Hela*.

Carp are very long-lived. Gesner brings an instance of one that was near 100 years old. They grow also to a very great size; some authors speak of carp weighing 200 pounds weight, and five feet in length. The carp is a prodigious breeder: its quantity of roe has been sometimes found so great, that when taken out and weighed against the fish itself, the former has been found to preponderate. From the spawn of this fish, caviare is made for the Jews, who hold the sturgeon in abhorrence. The carp is extremely cunning, and on that account is sometimes styled the *river-fox*. They will sometimes leap over the nets and escape that way; at other times they will immerse themselves so deep in the mud as to let the net pass over them. They are also very shy in taking a bait; yet at the spawning-time they are so simple as to suffer themselves to be tickled, handled, and caught by any body that will attempt it. This fish is apt to mix its milt with the roe of other fish; from which is produced a spurious breed; as has been observed in the offspring of the carp and tench, which bore the greatest resemblance to the first. The same has also been observed of the carp and bream.

In Polish Prussia, and many other parts of Germany, the sale of carp constitutes a part of the revenue of the nobility and gentry: so that the proper management of that fish is reduced to a kind of system, founded on the experience of several generations. Of the methods there practised, we have an account in the Philosophical Transactions for 1771, art. 37. communicated by Mr J. Reinhold Forster, who says, he has seen carp treated and maintained according to those methods, "above a yard long, and of 25 pounds weight:" but had no opportunity of ascertaining their age. "In the pond, however, at Charlottenburg (he adds), a palace belonging to the king of Prussia, I saw more

than two or three hundred carp, between two and three feet long; and I was told by the keeper they were between 50 and 60 years standing. They were tame, and came to the shore in order to be fed; they swallowed with ease a piece of white bread of the size of half a halfpenny roll." Mr Forster, in this paper, also vouches a most extraordinary circumstance, namely, the possibility of the carp's not only living for a considerable time out of water, but of its growing fat in its new element. The author has seen the experiment successfully tried, and attended to the whole process, in a nobleman's house where he then resided, in the principality of Anhalt-Deffau. The fish, being taken out of the water, is wrapped up in a large quantity of wet moss, spread on a piece of net, which is then gathered into a purse; in such a manner, however, as to allow him room to breathe. The net is then plunged into water, and hung up to the ceiling of a cellar. At first the dipping must be repeated every three or four hours; but afterwards the carp need only to be plunged into the water once in about six or seven hours. Bread soaked in milk is first given him in small quantities. In a short time, the fish will bear more, and grow fat under this seemingly unnatural treatment. Mr Daines Barrington, in a note, confirms a part of the preceding account, by mentioning the practice of a certain fishmonger near Claremarket, who, in the winter, frequently exposes a bushel at least of carp and tench, for sale, in the same dry vessel, for six or seven hours; many of which are not sold, and yet continue in health, though breathing nothing but air, during the time above-mentioned, for several days successively.

2. The barbus, or barbel, is so extremely coarse as to be overlooked by the ancients till the time of the poet Ausonius, who gives it no great character. They frequent the still and deep parts of rivers, and live in society, rooting like swine with their noses in the soft banks. It is so tame as to suffer itself to be taken by the hand; and people have been known to take numbers by diving for them. In summer they move about during night in search of food; but towards autumn, and during winter, confine themselves to the deepest holes. The barbel is about the length of three feet, and will weigh 18 pounds; the belly white; the dorsal fin is armed with a remarkable strong spine, sharply serrated, with which it can inflict a very severe and dangerous wound on the incautious handler, and even do much damage to nets. They are the worst and coarsest of fresh-water fish, and seldom eaten but by the poorer sort of people, who sometimes boil them with a bit of bacon to give them a relish. Their roe is very noxious, affecting those who unwarily eat of it with a nausea, vomiting, purging, and a slight swelling.

3. The tinca, or tench, was treated with the same disrespect by the ancients as the barbel; but is now in much more repute. It has by some been called the *physician* of the fish; and its slime has been said to be of so healing a nature, that the wounded fishes apply it as a styptic. In this country it is reckoned a wholesome and delicious food; but the Germans are of a different opinion. By way of contempt they call it the *shoemaker*. Gesner even says, that it is insipid and unwholesome. It does not commonly exceed four or five

Cyprinus. pounds in weight, though some have been known to weigh ten or twenty. They love still waters, and are rarely found in rivers: they are very foolish and easily caught. The tench is thick and short in proportion to its length. The colour of the back is dusky; the dorsal and ventral fins of the same colour; the head, sides, and belly, of a greenish cast, most beautifully mixed with gold, which is in its greatest splendor when the fish is in the highest season.

4. The gudgeon is generally found in gentle streams, and is of a small size, the largest not exceeding half a pound weight. They bite eagerly; and are assembled by raking the bed of the river; to this spot they immediately crowd in shoals, in expectation of food.

5. The brama, or bream, is an inhabitant of lakes, or the deep parts of still rivers. It is a fish that is very little esteemed, being extremely insipid.

6. The rutilus, or roach, is a common fish, found in many of the still deep rivers of this country. They are gregarious, keeping in large shoals. It has never been known to exceed five pounds in weight.

7. The leuciscus, or dace, like the roach is gregarious, haunts the same place, is a great breeder, very lively, and during summer is very fond of frolicking near the surface of the water. It never exceeds the weight of a pound and an half; the scales are smaller than those of the roach.

8. The cephalus, or chub, is a very coarse fish and full of bones. It frequents the deep holes of rivers; and in summer commonly lies on the surface beneath the shade of some tree or bush. It is very timid, sinking to the bottom on the least alarm, even at the passing of a shadow; but they will soon resume their former situation. It feeds on worms, caterpillars, grasshoppers, and other coleopterous insects that happen to fall into the water; and it will even feed on cray-fish. It will rise to a fly. Some of this kind have been known to weigh eight or nine pounds.

9. The alburnus, or bleak. These fish are very common in many of our rivers, and keep together in large shoals. At certain seasons they seem to be in great agonies: they tumble about near the surface of the water, and are incapable of swimming far from the place; but in about two hours they recover and disappear. Fish thus affected, the Thames fishermen call *mad* bleaks. They seem to be troubled with a species of *gordius*, or hair-worm, which torments them so, that they rise to the surface and then die. The bleak seldom exceeds five or six inches in length. Artificial pearls are made with the scales of this fish, and probably also with those of the dace. They are beat into a fine powder, then diluted with water, and introduced into a thin glass bubble, which is afterwards filled with wax. The French were the inventors of this art. During the month of July there appear in the Thames, near Blackwall and Greenwich, innumerable multitudes of small fish, known to the Londoners by the name of *white bait*. They are esteemed very delicious when fried with fine flour, and occasion, during the season, a vast resort of the lower order of epicures to the taverns at the places where they are taken at. There are various suppositions concerning these fishes, all of which terminate in reckoning them the fry of some other fish. Mr Pennant thinks they are of the

carp kind, though he cannot determine the species to *Cyprinus*, which they belong. They have a greater similarity to the bleak than to any other, but he thinks they cannot be the young fry of this species; because the bleak is found in many of the British streams, but the white bait only in the Thames. The usual length of this fish is only two inches.

10. The auratus, or golden fish, a small fish domesticated by the Chinese, and generally kept for ornament by great people in their courts and gardens. They breed them in small ponds made for the purpose, in basons, and even in porcelain vessels. This fish is no larger than our pilchard. The male is of a bright red colour from the top of the head to the middle of the body: the rest is of a gold colour; but it is so bright and splendid, that the finest gilding, according to F. le Comte, cannot approach it. The female is white; but its tail and half of its body resemble the lustre of silver. F. du Halde, however, observes, that a red and white colour are not always the distinguishing marks of the male and female; but that the females are known by several white spots which are seen round the orifices that serve them as organs of hearing, and the males, by having these spots much brighter. Gold-fish are light and lively; they love to sport on the surface of the water, soon become familiarised, and may even be accustomed to come and receive their food on sounding a small rattle. Great care is necessary to preserve them; for they are extremely delicate, and sensible of the least injuries of the air; a loud noise, such as that of thunder or cannons; a strong smell, a violent shaking of the vessel, or a single touch, will oft-times destroy them. These fish live with little nourishment: those small worms which are engendered in the water, or the earthy particles that are mixed with it, are sufficient for their food. The Chinese, however, take care, from time to time, to throw into the basons and reservoirs where they are kept small balls of paste, which they are very fond of when dissolved; they give them also lean pork dried in the sun and reduced to a fine and delicate powder, and sometimes snails: the slime which these insects leave at the bottom of the vessel is a great delicacy for them, and they eagerly hasten to feed on it. In winter they are removed from the court to a warm chamber, where they are kept generally shut up in a porcelain vessel. During that season they receive no nourishment; however, in spring, when they are carried back to their former bason, they sport and play with the same strength and liveliness as they did the preceding year.

In warm countries these fish multiply fast, provided care be taken to collect their spawn, which floats on the water, and which they almost entirely devour. This spawn is put into a particular vessel exposed to the sun, and preserved there until vivified by the heat: gold-fish, however, seldom multiply when they are kept in close vases, because they are then too much confined. In order to render them fruitful, they must be put into reservoirs of considerable depth in some places at least, and which are constantly supplied with fresh water. At a certain time of the year, a prodigious number of barks may be seen in the great river *Yang-tse-kiang*, which go thither to purchase the spawn of these fish.

Grozier's Description of China

Cyprinus fish. Towards the month of May, the neighbouring inhabitants shut up the river in several places with mats and hurdles, which occupy an extent of almost nine or ten leagues; and they leave only a space in the middle sufficient for the passage of barks. The spawn of the fish, which the Chinese can distinguish at first sight, altho' a stranger could perceive no traces of it in the water, is stopped by these hurdles. The water mixed with spawn is then drawn up, and after it has been put into large vessels, it is sold to merchants, who transport it afterwards to every part of the empire. This water is sold by measure, and purchased by those who are desirous of stocking their ponds and reservoirs with fish.

Notwithstanding the tenderness of these fish even in their native climates, they are now naturalized in Britain, where they even breed. They were first introduced into England about the year 1691; but were not generally known till 1728, when a great number were brought over, and presented first to Sir Matthew Dekker, and by him circulated round the neighbourhood of London, from whence they have been distributed to most parts of the country.

Nothing can be more amusing than a glass bowl containing such fishes: the double refractions of the glass and water represent them, when moving, in a shifting and changeable variety of dimensions, shades, and colours; while the two mediums, assisted by the concavo-convex shape of the vessel, magnify and distort them vastly; not to mention that the introduction of another element and its inhabitants into our parlours engages the fancy in a very agreeable manner. Some people exhibit this sort of fish in a very fanciful way; for they cause a glass bowl to be blown with a large hollow space within that does not communicate with it. In this cavity they put a bird occasionally; so that you may see a goldfinch or a linnet hopping as it were in the midst of the water, and the fishes swimming in a circle round it. The simple exhibition of the fishes is agreeable and pleasant; but in so complicated a way becomes whimsical and unnatural, and liable to the objection due to him,

Qui variare cupit rem prodigialiter unam.

CYPRIPEDIUM, the LADY'S SLIPPER, in botany: A genus of the diandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 7th order, *Orchideæ*. The nectarium is ventricose, inflated, and hollow. There are three species; of which only one, *viz.* the calceolus, is a native of Britain. It grows in rough ground in different parts of the island. The other species are natives of America. None of them are easily propagated in gardens, and therefore must be transplanted from those places where they are natives.

CYPRUS, an island situated in the Levant, or most easterly part of the Mediterranean sea, between 33 and 36 degrees of east longitude, and 30 and 34 of north latitude. In ancient times this island was known by the names of Acamis, Ceraftis, Aspalia, Amathus, Macaria, Cryptos, Colonia, Sphecia, Paphia, Salaminia, Ærofa, and Cyprus. The etymologies of these names are neither very easily found, nor are they of much importance. The name by which it was most generally known is that of *Cyprus*, said to be derived from *cypros*, the name of a shrub or tree with which the island abounded; supposed to be the cypress.

Cyprus, according to Eratosthenes, was first discovered by the Phœnicians, two or three generations before the days of Asterius and Minos, kings of Crete; that is, according to Sir Isaac Newton's computation, 2006 years before the Christian æra. It was at that time so full of wood that it could not be tilled, and the Phœnicians first cut down that wood for melting copper, with which the island abounded; and afterwards, when they began to sail without fear on the Mediterranean, that is, after the Trojan war, they built great navies of the wood produced on this island. Josephus, however, informs us, that the descendants of *Cittim*, the son of Javan, and grandson of Japhat, were the original inhabitants of Cyprus. According to his account, Cittim, seeing his brother Tarshish settled in Cilicia, where he built the city of Tarsus, settled with his followers in this opposite island; and either he or his descendants laid the foundation of the city of Cittim, which, according to Ptolemy, was the most ancient in the island. As Cyprus was too narrow to contain the great numbers who attended him, he left here as many as might serve to people the country, and with the rest passed over to Macedon.

The island of Cyprus was divided among several petty kings till the time of Cyrus the Great. He subdued them all; but left each in possession of his kingdom, obliging them only to pay him an annual tribute, and to send supplies of men, money, and ships, when required. The Cyprian princes lived thus subject to the Persians till the reign of Darius Hytaspes, when they attempted to shake off the yoke, but with bad success; their forces being entirely defeated, and themselves again obliged to submit. They made another more successful attempt about the year before Christ 357; but, however, could never totally free themselves from their subjection. It is very probable that they submitted to Alexander the Great, though historians are silent as to that event. On the death of the Macedonian conqueror, the dominion of Cyprus was disputed by Antigonus and Ptolemy, the son of Lagus. At last Antigonus prevailed, and the whole island submitted to him about 304 years before Christ. He and his son Demetrius kept possession of it for 11 years, when it was recovered by Ptolemy, and quietly possessed by him and his descendants till 58 years before Christ, when it was most unjustly seized by the Romans. In the time of Augustus, it began to be ranked among the proconsular provinces, and to be governed by magistrates sent thither by the senate. In the year 648 it was conquered by the Saracens; but recovered by the Romans in 957. They held it, however, but for a very short time, and the barbarians kept possession of it till the time of the croisades. It was then reduced by the croisaders; and Richard I. of England gave it to the princes of the Lusignan family, who held it till the year 1570. They divided it into 12 provinces, in each of which was a capital city, from which the province was denominated. So considerable was the island at this time, that besides the cities above-mentioned, and others of less note, it contained 800 villages. In 1570 it was taken by the Turks, and though it hath ever since continued under their tyrannical yoke, is still so considerable as to be governed by a beglerbeg, and seven sangiacs under him.

The air in this island is for the most part very unwholesome,

Cyrano, wholesome, on account of the many fens and marshes with which the country abounds. The soil is an excellent fertile clay; and would produce all the necessaries of life in abundance, if properly cultivated. There are but few springs or rivers in this island; so that when the rains do not fall plentifully at the usual seasons, the inhabitants are much distressed by the scarcity of water. By reason of the uncultivated state of the country, they are also greatly infested with poisonous reptiles of various kinds. The people are extremely ignorant and lascivious, as indeed they are remarked to have been from the remotest antiquity. Anciently the worship of Venus was established in this island, whence her title among the poets of the *Cyprian queen*; and such an inclination had the inhabitants to become the votaries of this goddess, both in theory and practice, that the young women used to prostitute themselves in her temple in order to raise themselves portions. Nor are their successors said to be much better at this day. The exports of the island are silks, oil, cotton, wine, salt, and turpentine: the imports are French and Venetian broad cloths; and sometimes a few bales of English manufacture, cutlery wares, sugar, tin, lead, &c.

Knights of Cyprus, an order instituted by Guy de Lusignan, titular king of Jerusalem, to whom Richard I. of England, after conquering this island, made over his right.

CYRANO (Bergerac), a French author, born in Gascony, about the year 1620. He first entered into the army, where his natural courage engaged him frequently in duels in the quality of a second; which, with other rash actions, procured him the title of the *Intrepid*. But the little prospect he saw of preferment made him renounce the trade of war for the exercise of wit. His comic histories of the states and empires in the sun and moon, show him well acquainted with the Cartesian philosophy, and to have a lively imagination. Our Lord Orrery classes him with Swift for his turn of humour, which he says the latter adopted and pursued.

CYRENAICA, an ancient kingdom of Africa, corresponding to the present kingdom and desert of Barca and Tripoli. It was originally inhabited by a number of barbarous nations, differing little from great gangs of robbers. Afterwards some colonies from Greece settled here, and Cyrenaica became so powerful a state, that it waged war with Egypt and Carthage, often with success. In the time of Darius Hystaspes, Arcefilaus, the reigning prince in Cyrenaica, was driven from the throne: on which his mother Pheretima applied for assistance to the king of Cyprus. Her son afterwards returning to Barca, the chief city of Cyrene, was there assassinated, together with his father-in-law. Pheretima finding herself disappointed by the king of Cyprus, applied to Darius Hystaspes, and by the assistance of the Persians reduced Barca. Here she behaved with the utmost cruelty, causing all those who had been concerned in her son's death to be impaled, and the breasts of their wives to be cut off and affixed near them. She is said to have been afterwards devoured by worms; which was looked upon as a divine judgment for her excessive cruelty. The prisoners in the mean time were sent to Darius, who settled them in a district of Bactria, from them called

Barca. Cyrenaica, however, seems to have remained free till the time of Alexander the Great, who conquered it along with Egypt. Soon after his death the inhabitants recovered their liberty; but were in a short time reduced by Ptolemy king of Egypt. Under these kings it remained till Ptolemy Physcon made it over to his bastard son Apian, who in the 658th year of Rome left it by will to the Romans. The senate permitted all the cities to be governed by their own laws; and this immediately filled the country with tyrants, those who were most potent in every city or district endeavouring to assume the sovereignty of it. Thus the kingdom was thrown into great confusion; but Lucullus in a good measure restored the public tranquillity on his coming thither during the first Mithridatic war. It was found impossible, however, totally to suppress these disturbances till the country was reduced to the form of a Roman province, which happened about 20 years after the death of Apian, and 76 before Christ. Upon a revolt, the city of Cyrene was ruined by the Romans; but they afterwards rebuilt it. In process of time it fell to the Arabs; and then to the Turks, who are the present masters of it.

CYRENAICS, a sect of ancient philosophers, so called from their founder Aristippus of Cyrene, a disciple of Socrates.

The great principle of their doctrine was, that the supreme good of man in this life is pleasure; whereby they not only meant a privation of pain, and a tranquillity of mind, but an assemblage of all mental and sensual pleasures, particularly the last.

Cicero makes frequent mention of Aristippus's school, and speaks of it as yielding debauchees. Three disciples of Aristippus, after his death, divided the sect into three branches; under which division it languished and sunk: the first called the *Hegesiæ* school; the second the *Annicerian*; and the third the *Theodoran*; from the names of their authors.

CYRENE (anc. geog.), the capital of Cyrenaica, and one of the cities called *Pentapolis*, distant from Apollonia, its sea-port, 10 miles, situated on a plain, of the form of a table, according to Strabo: A colony of the Thereans. Though they were descendants of the Lacedæmonians, yet they differed from them in their turn of mind or disposition, applying themselves to philosophy; and hence arose the Cyrenaic sect, at the head of which was Aristippus, who placed all happiness in pleasure. The Cyreneans were a people much given to aurigation, or the use of the chariot, from their excellent breed of horses, (Pindar, Ephorus, Strabo.)

CYRIL (St) bishop of Jerusalem, succeeded Maximus in 350. He was afterward deposed for the crime of exposing to sale the treasures of the church, and applying the money to the support of the poor during a great famine. Under Julian he was restored to his see, and was firmly established to all his old honours and dignities under Theodosius; in which he continued unmolested to his death in 386. The remains of this father consist only of 23 catecheses, and one letter to the emperor Constantius.

CYRILL (St) patriarch of Alexandria, succeeded Theophilus, his uncle, in 412. Scarce was he installed, when he began to exert his authority with great vigour; he drove the Novatians and Jews from Alexandria,

Cyrenaica
Cyrill.

Cyrus. andria, permitting their wealth and synagogues to be taken from them. This proceeding highly displeased Orestes, the governor of the city, who saw that if the bishop's authority was not soon suppressed, it might grow too strong for that of the magistrate. Upon which a kind of civil war broke out between Orestes and the bishop; many tumults were raised, and some battles fought in the very streets of Alexandria. St Cyrill also distinguished himself by his zeal against Nestorius bishop of Constantinople, who, in some of his homilies, had asserted that the Virgin Mary ought not to be called the mother of God. The dispute at first proved unfavourable to Cyrill, whose opinion was not only condemned, but himself deprived of his bishopric and thrown into prison. But he was soon after released, and gained a complete victory over Nestorius, who in 431 was deposed from his see of Constantinople. Cyrill returned to his see at Constantinople, where he died in 444. St Cyrill also wrote against Theodorus of Mopsuesta, Diodorus of Tarsus, and Julian the apostate. He composed commentaries on St John's gospel, and wrote several other books. His works were published in Greek and Latin in 1638, in six volumes folio.

CYRUS, the son of Cambyfes the Persian, by Mandane the daughter of Astyages king of the Medes. The two chief historians, who have written the life of Cyrus, are Herodotus and Xenophon; but their accounts of him are different, in as much as the latter makes his father a king of Persia, and the former a meaner man. The account of Herodotus, as Dr Prideaux observes, indeed contains narratives that are much more strange and surprising, and consequently more diverting and agreeable to the reader: and for this reason more have chosen to follow him than Xenophon.

Herodotus informs us, that Astyages king of the Medes, dreamed, that a vine sprung from the womb of his daughter Mandane, the branches whereof overshadowed all Asia; whereupon having consulted the soothsayers, he was told that his dream portended the future power and greatness of a child who should be born of his daughter: and further, that the same child should deprive him of his kingdom. Astyages, to prevent the accomplishment of this prediction, instead of marrying his daughter to some powerful prince, gave her to Cambyfes, a Persian of mean condition, and one who had no great capacity for forming any important design, nor for supporting the ambition of his son, by his own riches and authority. Nor did Astyages stop here: the apprehensions he was under, lest Mandane's son might perhaps find that assistance in his own courage, or some lucky circumstances which his family was not able to supply him with, induced him to take a resolution of dispatching the child, if there should be any. As soon, therefore, as he understood his daughter was with child, he commanded one of his officers, whose name was Harpagus, to destroy the infant as soon as it came into the world. Harpagus, fearing the resentment of Mandane, put the child into the hands of one who was the king's shepherd, in order to expose him. The shepherd's wife was so extremely touched with the beauty of Cyrus, that she desired her husband rather to expose her own son, who was born some time before, and preserve the young prince. Af-

ter this manner Cyrus was preserved, and brought up among the king's shepherds.

Cyrus.

One day, as the neighbouring children were at play together, Cyrus was chosen king; and having punished one of his little play-fellows with some severity, for disobeying his commands, the child's parent complained of Cyrus to Astyages. This prince sent for young Cyrus, and observing something great in his air, his manner and behaviour, together with a great resemblance of his daughter Mandane, he made particular enquiry into the matter, and discovered that, in reality, Cyrus was no other than his grandson. Harpagus, who was the instrument of preserving him, was punished with the death of his own son: however, Astyages believing that the royalty which the soothsayers had promised to the young prince, was only that which he had lately exercised among the shepherds children, troubled himself no more about it. Cyrus being grown up, Harpagus disclosed the whole secret of his birth to him, together with the manner wherein he had delivered him from the cruel resolution of his grandfather. He encouraged him to come into Media, and promised to furnish him with forces, in order to make him master of the country, and depose Astyages. Cyrus hearkened to these propositions, engaged the Persians to take up arms against the Medes, marched at the head of them to meet Astyages, defeated him, and possessed himself of Media. He carried on many other wars; and at length sat down before Babylon, which after a long siege he took.

The relation of Cyrus's life from Xenophon is as follows: Astyages king of Media married his daughter Mandane to Cambyfes king of Persia, son to Achæmenes king of the same nation. Cyrus was born at his father's court, and was educated with all the care his birth required. When he was about the age of 12 years, his grandfather Astyages sent for him to Media, together with his mother Mandane. Some time after, the king of Assyria's son having invaded Media, Astyages, with his son Cyaxares and his grandson Cyrus, marched against him. Cyrus distinguished himself in this war, and defeated the Assyrians. Cambyfes afterwards recalled him, that he might have him near his own person; and Astyages dying, his son Cyaxares, uncle by the mother's side to Cyrus, succeeded him in the kingdom of Media.

Cyrus, at the age of 30 years, was, by his father Cambyfes, made general of the Persian troops; and sent at the head of 30,000 men to the assistance of his uncle Cyaxares, whom the king of Babylon, with his allies the Cappadocians, Carians, Phrygians, Cilicians, and Paphlagonians, were preparing to attack. Cyaxares and Cyrus prevented them, by falling upon them and dispersing them. Cyrus advanced as far as Babylon, and spread terror throughout the country. From this expedition he retired to his uncle, towards the frontiers of Armenia and Assyria, and was received by Cyaxares in the tent of the Assyrian king whom he had defeated.

After this Cyrus carried the war into the countries beyond the river Halys, entered Cappadocia, and subdued it entirely. From thence he marched against Croesus king of Lydia, beat him in the first battle; then besieged him in Sardis his capital; and after a
siege

Cyrus. siege of fourteen days obliged him to surrender. See **CROESUS.** After this, Cyrus having almost reduced all Asia, repassed the Euphrates, and made war upon the Assyrians. He marched directly to Babylon, took it, and there prepared a place for his uncle Cyaxares, whither he might retire, if at any time he had an inclination to come to Babylon; for he was not then in the army. After all these expeditions, Cyrus returned to his father and mother into Persia, where they were still living: and going some time after to his uncle Cyaxares into Media, he married his cousin the only daughter and heiress of all Cyaxares' dominions, and went with her to Babylon, from whence he sent men of the first rank and quality to govern all the several nations which he had conquered. He engaged again in several wars, and subdued all the nations which lie between Syria and the Red Sea. He died at the age of 70 years, after a reign of 30: but authors differ very much concerning the manner of his death. Herodotus, Justin, and Valerius Maximus relate, that he died in the war against the Scythians; and that falling into an ambush which queen Tomyris had laid for him, she ordered his head to be cut off, and cast into a vessel full of blood, saying, "Thou hast always thirsted after human blood, now glut thyself with it." Diodorus the Sicilian says, that he was taken in an engagement and hanged. Ctesias assures us, that he died of a wound which he received in his thigh: but by Xenophon's account he died peaceably in his bed, amidst his friends and servants; and certain it is, that in Alexander's time his monument was shown at Pasargarda in Persia.

From all this it is easy to conclude, that we are but imperfectly acquainted with the history of this great prince, the founder of the Persian, and destroyer of the Chaldean empire. We learn fewer particulars of it from scripture, but then they are more certain than any that we have produced. Daniel (viii. 3—20.) in the famous vision wherein God showed him the ruin of several great emperors, which were to precede the birth of the Messiah, represents Cyrus to us under the idea of "a ram, which had two horns; and the two horns were high, but the one was higher than the other, and the higher came up last. This ram pushed westward, and northward, and southward, so that no beasts might stand before him; neither was there any that could deliver out of his hand, but he did according to his will, and became great." The ram's two horns signify the two empires which Cyrus reunited in his person; that of the Medes, and that of the Persians. The last was greater and more powerful than the empire of the Medes; or otherwise, these two horns signify the two branches of Cyrus's successors. His son Cambyfes dying, the empire was transferred to Darius the son of Hytaspes, and was continued down to Darius Codomannus, who, as Calmet thinks, is the great horn which the he-goat, that denotes Alexander, ran against. In chap. vii. 5. Daniel compares Cyrus to a bear, with three ribs in the mouth of it, to which it was said, "Arise, devour much flesh." Cyrus succeeded his father Cambyfes in the kingdom of Persia, and Darius the Mede, by Xenophon called Cyaxares, and Astyages in the apocryphal chapter (xiii. 1.) of Daniel, in the kingdom of the Medes and empire of Babylon. He was monarch of

Nº 96.

all the east; or as he speaks (2 Chr. xxxvi. 22. 23. and Ezr. i. 1. 2.) "of all the earth," when he permitted the Jews to return to their own country, in the year of the world 3466, before Jesus Christ 538. The enemies of the Hebrews, making use of this prince's affection to his own religion, prevailed with him to put a stop by his orders to the building of the temple at Jerusalem; (Ezr. iv. 5.) The prophets frequently foretold the coming of Cyrus; and Isaiah (xli. 28.) has been so particular as to declare his name 200 years before he was born. Josephus (Antiq. I. II. c. 2.) says, that the Jews of Babylon showed this passage of the prophet to Cyrus; and that this prince, in the edict which he granted them for their return, acknowledged that he received the empire of the world from the God of Israel; and that the same God had described him by name in the writings of the prophets, and foretold that he should build a temple to him at Jerusalem. Cyrus is pointed out in scripture under the name of the righteous man and the shepherd of Israel, (Isaiah xli. 2. 10. xli. 11. and xli. 28.) Notwithstanding this, God says of him (Isaiah xlv. 5.) "I girded thee, though thou hast not known me." And Jeremiah calls Cyrus and his people who overthrew the Babylonish empire, thieves and robbers. The taking of Babylon by Cyrus is clearly set down by the prophets, and may be seen under the articles BABYLON and BELSHAZZAR. Archbishop Usher fixes the birth of Cyrus to the year of the world 3405; his first year at Babylon to 3466, and his death to 3475. The eastern people will have it, that Cyrus by his mother's side was descended from some of the Hebrew prophets: as also that his wife was a Jew, which is the reason (say they) that this prince so attached himself to the Jews, to whom he was so nearly allied.

CYRUS II. was the younger son of Darius Nothus, and the brother of Artaxerxes. He was sent by his father at the age of 16 to assist the Lacedæmonians against Athens. Artaxerxes succeeded to the throne at the death of Nothus; and Cyrus, who was of an aspiring soul, attempted to assassinate him. He was discovered, and had been punished with death, had not his mother Parysatis saved him from the hands of the executioner by her tears and intreaties. This circumstance did not in the least check the ambition of Cyrus; he was appointed over Lydia and the sea-coasts, where he secretly fomented rebellion and levied troops under various pretences. At last he took the field with an army of 100,000 barbarians, and 13,000 Greeks under the command of Clearchus. Artaxerxes met him with 900,000 men near Cunaxa. The battle was long and bloody; and Cyrus might have perhaps obtained the victory, had not his uncommon rashness proved his ruin. It is said that the two royal brothers met in person, and their engagement ended in the death of Cyrus, 401 years before the Augustan age. Artaxerxes was so anxious of its being universally reported that his brother had fallen by his hand, that he put to death two of his subjects for boasting that they had killed Cyrus. The Greeks, who were engaged on the expedition, obtained much glory in the battle; and after the death of Cyrus they remained victorious in the field without a commander. They were not discouraged, though at the distance of above

600

Cyst
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Cytisus.

600 leagues from their country, and surrounded on every side by a powerful enemy. They unanimously united in the election of commanders, and traversed all Asia, in spite of the continual attacks of the Persians; and nothing is more truly celebrated in ancient history than the bold retreat of the ten thousand. The journey that they made from the place of their first embarkation till their return, has been calculated at 1155 leagues performed in the space of 15 months, including all the time which was devoted to take rest and refreshment. This retreat has been celebrated by Xenophon, who was one of their leaders, and among the friends and supporters of Cyrus.

CYST, the bag or tunic including all incysted tumors, as the scirrhus, atheroma, steotoma, melicer, &c.

CYSTIC, in anatomy, a name given to two arteries and two veins.

CYSTIC DUCT. See ANATOMY, n° 97.

CYTHERA, *orum*, (anc. geog.) an island opposite to Mallea, a promontory, and to Boiæ, a town of Laconica; with a cognominal town, which has an excellent port called *Scandea*. The island was sacred to Venus, with a very ancient temple of that goddess exhibited in armour at Cythera, as in Cyprus: now *Cerigo*.

CYTHEREA, in mythology, the surname of Venus, so called from Cytheræ an island, where she had a temple esteemed the most ancient in Greece, and on the shores of which she was believed to be borne by the Zephyrs, surrounded by the Loves, the Tritons, and Nereides, reclining in a languishing posture in a sea-shell. They give the name of Cytheriades to the Graces which attended her on the shore without quitting her, except on those occasions when she rather chose to be waited upon by the Pleasures.

CYTINUS, in botany: A genus of the dodecandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 11th order, *Sarmentaceæ*. The calyx is quadrid, superior; there is no corolla; the antheræ are 16, and sessile; the fruit an octolocular polyspermous berry.

CYTISUS, TREE TREFOIL: A genus of the decandria order, belonging to the diadelphia class of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The calyx is bilabiated, with the upper lip bifid; inferior, tridentate; the legumen attenuated at the base. There are 11 species; of which the most remarkable are, 1. The laburnum, or large deciduous cytissus, hath a large upright tree-stem, branching into a full-spreading head, 20 or 30 feet high, having smooth greenish branches, oblong oval entire leaves, growing by threes on long slender foot-stalks; and from the sides of all the branches numerous yellow flowers collected into long spikes hanging loosely downward, and appearing in May. 2. The sessilifolius, often called *cytissus secundus clusii*, has a low shrubby stem dividing into numerous erect brownish branches, forming a bushy head five or six feet high, garnished with small oval leaves growing by threes; some on very short foot-stalks, others sitting close; and bright yellow flowers in short erect spikes at the end of the branches, appearing in June. 3. The nigricans grows with a short shrubby stem, dividing low into many erect slender branches, forming a bushy

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head four or five feet high, with oblong, oval, trifoliate leaves, and yellow flowers terminating all the branches in upright spikes, appearing in July. 4. The hirsutus, or hairy evergreen Neapolitan cytissus, rises with an upright shrubby grey stem, sending out many erect greenish hairy branches, forming a fine head six or eight feet high, closely garnished with small hairy trifoliate leaves on short foot-stalks, and yellow flowers from the sides of the branches in short pendulous spikes, appearing in June. 5. The Austriacus, Austrian or Tartarian evergreen cytissus, hath a shrubby stem, dividing low into many greenish branches, forming a bushy head three or four feet high, having smooth whitish-green leaves, and bright yellow flowers in close umbellate heads at the ends of the branches, having a cluster of leaves under each head. These flowers appear in May.

Culture, &c. All the sorts are hardy, and will prosper in any common soil and exposure: though, as the hirsutus is sometimes affected by severe frost, it should have a dry soil, and a somewhat sheltered situation. They may all be propagated by seeds or cuttings, and all the culture they require in the nursery is to have the ground kept clear from weeds, and dug annually between the rows. Though they are generally considered only as ornamental shrubs, yet the first species, if originally trained to a stem, and suffered to stand, will grow to the size of pretty large timber trees. They grow naturally on the Alps, the mountains of Dauphiny, and the highlands of Scotland; and the timber being very hard, and taking a fine polish, is frequently used for making chairs, tables, bedsteads, and other furniture; and is said to equal the finest mahogany in beauty. A species of cytissus, called by Linnæus *cytissus cajan*, is known in the West Indies, where it is a native, by the name of the *pigeon-pea*, from the seeds being the common food of these birds in that part of the world. These seeds are also sometimes used as food for the human species; and as they are of a very binding quality, afford a wholesome nourishment during the wet season, when dysenteries are so frequent.

CYZICENS, CYZICENA, among the ancient Greeks, were a sort of magnificent banqueting-houses, always looking towards the north, and usually opening upon gardens.

They had their name from Cyzicus, a city very considerable for the grandeur of its buildings; situated in an island of Mysia, bearing the same name.

CYZICUM, or CYZICUS (anc. geog.), one of the noblest cities of the Hither Asia; situated in a cognominal island of the Propontis, on the coast of Mysia; joined to the continent by two bridges (Strabo); the first by Alexander: the city, a colony of the Milesians (Pliny). Rendered famous by the siege of Mithridates, which was raised by Lucullus.—The inhabitants were made a free people by the Romans, but forfeited their freedom under Tiberius. It was adorned with a citadel and walls round it; had a port and marble towers: and three magazines, one for arms, another for warlike engines, and a third for corn. Cyziceni, the people; noted by the ancients for their timidity and effeminacy: hence the proverb in Zenodotus and others, *Tinctura Cyzenica*, applied to persons guilty of an indecency through fear; but *Stateres Cyziceni*.

Cytissus
||
Cyzicum.

Czack-
thurn.
Czar.

ziceni, nummi Cyziceni, denote things executed to perfection.

CZACKTHURN, a strong town of Germany, in Austria, and near the frontiers of Hungary. It is seated between the rivers Drave and Muhir, in E. Long. 17. 19. N. Lat. 46. 24.

CZAR, a title of honour, assumed by the grand-dukes, or, as they are now styled, emperors of Russia.

The natives pronounce it *tzar*, or *zaar*; and this, by corruption (it has been fancied), from *Caesar*, "emperor," from some imagined relation to the Roman emperors. But this etymology does not seem correct. When the czar Peter formally required of the European courts an acknowledgment of his imperial titles, and that the appellation of *Emperor* should never be omitted, there was great difficulty made about it, especially at the Court of Vienna; which occasioned him to produce the famous letter, written in the German tongue, from Maximilian I. emperor of Germany, to Vassili Ivanovitch, confirming a treaty of alliance offensive and defensive against Sigismund king of Poland. In this dispatch, which is dated August the 4th, 1514, and is ratified with the seal of the golden-bull, Maximilian addresses Vassili by calling him *Kayser* and *Herrscher aller Russen*, "emperor and ruler of all the Russias." But independently of this document, there could be no doubt that the foreign courts, in their intercourse with that of Moscow, styled the sovereigns indiscriminately *Great Duke*, *Czar*, and *Emperor*. With respect to England in particular, it is certain, that in Chancellor's Account of Russia, so early as the middle of the 16th century, Ivan Vassilievitch II. is called *Lord and Emperor of all Russia*; and in the English dispatches, from the reign of Elizabeth to that of Anne, he is generally addressed under the same appellation. When the European powers, however, styled the czar *Emperor of Muscovy*, they by no means intended to give him a title similar to that which was peculiar to the emperor of Germany; but they bestowed upon him that appellation as upon an Asiatic sovereign, in the same manner as we now say the emperors of China and Japan. When Peter, therefore, determined to assume the title of emperor, he found no difficulty in proving that it had been conferred upon his predecessors by most of the

European powers; yet when he was desirous of affixing to the term the European sense, it was considered as an innovation, and was productive of more negotiations than would have been requisite for the termination of the most important state affair. At the same time it occasioned a curious controversy among the learned, concerning the rise and progress of the titles by which the monarchs of this country have been distinguished. From their researches it appeared, that the early sovereigns of Russia were called great duke, and that Vassili Ivanovitch was probably the first who styled himself *tzar*, an expression which in the Sclavonian language signifies *king*; and that his successors continued to bear within their own dominions that title as the most honourable appellation, until Peter the Great first took that of *Povelitel*, or emperor. After many delays and objections, the principal courts of Europe consented, about the year 1722, to address the sovereign of Russia with the title of Emperor; without prejudice, nevertheless, to the other crowned heads of Europe.

CZASLAU, a town of Bohemia, and capital of a circle of the same name. Here is the highest tower in all Bohemia; and near this place the king of Prussia gained a victory over the Austrians in 1742. It is seated on the river Crudenka, in E. Long. 15. 33. N. Lat. 49. 50.

CZENSTOKOW, a town of Poland in the palatinate of Cracovia, with a fort, in which they keep a rich treasure, called "the treasure of the virgin Mary." The pilgrims flock hither so much for the sake of a convent near it, that it is called the *Loretto* of Poland. The town is situated on the river Warta, E. Long. 19. 15. N. Lat. 50. 48.

CZERNIC, a town of Carniola, in Austria, situated in E. Long. 15. 0. N. Lat. 46. 12. It is remarkable for its lake; for a particular description of which see the article CIRCHNITZER.

CZERNIKOU, a considerable town of Muscovy, and capital of a duchy of the same name, with a castle. It is seated on the river Dezna, in E. Long. 32. 13. N. Lat. 51. 20.

CZONGRODT, a town of Upper Hungary, and capital of a territory of the same name, at the confluence of the rivers Teisse and Keres. E. Long. 20. 57. N. Lat. 46. 50.

Czassau
||
Czon-
grodt.

D A C

D

D A C

Dacca,
Dace.D
||
Dacca.

D, THE fourth letter of the alphabet, and the third consonant.

Grammarians generally reckon D among the lingual letters, as supposing the tongue to have the principal share in the pronunciation thereof; though the Abbot de Dangeau seems to have reason in making it a palate letter. The letter D is the fourth in the Hebrew, Chaldee, Samaritan, Syriac, Greek, and Latin alphabets; in the five first of which languages it has the same name, though somewhat differently spoke, e. g. in Hebrew, Samaritan, and Chaldee *Daleth*, in Syriac *Doletth*, and in Greek *Delta*.

The form of our D is the same with that of the Latins, as appears from all the ancient medals and inscriptions; and the Latin D is no other than the Greek Δ, rounded a little, by making it quicker and at two strokes. The Δ of the Greeks, again, is borrowed from the ancient character of the Hebrew *Daleth*; which form it still retains, as is shown by the Jesuit Souciet, in his dissertation on the Samaritan Medals.

D is also a numeral letter, signifying *five hundred*; which arises hence, that, in the Gothic characters, the D is half the M, which signifies a *thousand*. Hence the verse,

Litera D velut A quingentos significabit.

A dash added a-top, $\overline{D}$, denotes it to stand for *five thousand*.

Used as an abbreviation, it has various significations: thus D stands for Doctor; as, M. D. for Doctor of Medicine; D. T. Doctor of Theology; D. D. implies Doctor of Divinity, or "dono dedit;" D. D. D. is used for "dat, dicat, dedicat;" and D. D. D. D. for "dignum Deo donum dedit."

DAB, in ichthyology, the English name of a species of PLEURONECTES.

DABUL, a town of Asia, in the East Indies, on the coast of Malabar, and to the south of the gulf of Cambaye, on a navigable river. It was formerly very flourishing, but is now much decayed. It belongs to the Portuguese, and its trade consists principally in pepper and salt. E. Long. 73. 55. N. Lat. 17. 30.

DACCA, a town of Asia, in the kingdom of Bengal in the East Indies, situated in E. Long. 89. 10. N. Lat. 24. 0.—The advantages of the situation of this place, and the fertility of the soil round it, have long since made it the centre of an extensive commerce. The courts of Delhi and Muxadavad are furnished from thence with the cottons wanted for their own consumption. They each of them maintain an agent on the spot to superintend the manufacture of them; and he has an authority, independent of the magistrate, over the brokers, weavers, embroiderers, and all the workmen whose business has any relation to the object of his commission. These unhappy people are forbidden, under pecuniary and corporal penalties, to sell, to any person whatever, a piece exceeding the value of

three guineas: nor can they, but by dint of money, relieve themselves from this oppression.

In this, as in all the other markets, the Europeans treat with the Moorish brokers settled upon the spot, and appointed by the government. They likewise lend their name to the individuals of their own nation, as well as to Indians and Armenians living in their settlements, who, without this precaution, would infallibly be plundered. The Moors themselves, in their private transactions, sometimes avail themselves of the same pretence, that they may pay only two, instead of five per cent. A distinction is observed, in their contracts, between the cottons that are bespoke and those which the weaver ventures, in some places, to manufacture on his own account. The length, the number of threads, and the price, of the former are fixed: nothing further than the commission for the latter is stipulated, because it is impossible to enter into the same detail. These nations that make a point of having fine goods, take proper measures that they may be enabled to advance money to their workmen at the beginning of the year. The weavers, who in general have but little employment at that time, perform their work with less hurry than in the months of October, November, and December, when the demand is pressing.

Some of the cottons are delivered unbleached, and others half bleached. It were to be wished that this custom might be altered. It is very common to see cottons that look very beautiful, go off in the bleaching. Perhaps the manufacturers and brokers foresee how they will turn out; but the Europeans have not so exquisite a touch, nor such an experienced eye to discern this. It is a circumstance peculiar to India, that cottons, of what kind soever they are, can never be well bleached and prepared but in the place where they are manufactured. If they have the misfortune to get damage before they are shipped for Europe, they must be sent back to the places from whence they came.

DACE, in ichthyology, a species of CYPRINUS.

This fish is extremely common in our rivers, and gives the expert angler great diversion. The dace will bite at any fly; but he is more than ordinarily fond of the stone caddis, or May-fly, which is plentiful in the latter end of April and the whole month of May. Great quantities of these may be gathered among the reeds of sedges by the water-side; and on the hawthorn bushes near the waters. These are a large and handsome bait; but as they only last a small part of the year in season, recourse is to be had to the ant-fly. Of these the black ones found in large mole-hills or ant-hills are the best. These may be kept alive a long time in a bottle, with a little of the earth of the hill, and some roots of grass; and they are in season throughout the months of June, July, August, and September. The best season of all is when they swarm, which is in the

Dachaw,
Dacier.

end of July or beginning of August; and they may be kept many months in a vessel washed out with a solution of honey in water, even longer than with the earth and grass-roots in the vial; though that is the most convenient method with a small parcel taken for one day's fishing. In warm weather this fish very seldom refuses a fly at the top of the water; but at other times he must have the bait sunk to within three inches of the bottom. The winter fishing for dace requires a very different bait: this is a white maggot with a reddish head, which is the produce of the eggs of the beetle, and is turned up with the plough in great abundance. A parcel of these put in any vessel, with the earth they were taken in, will keep many months, and are an excellent bait. Small dace may be put into a glass jar with fresh water; and there preserved alive for a long time, if the water is properly changed. They have been observed to eat nothing but the animalcula of the water. They will grow very tame by degrees.

DACHAW, a town of Bavaria in Germany. It is pretty large, well built, and seated on a mountain, near the river Amber. Here the elector has a palace and fine gardens. E. Long. 11. 30. N. Lat. 48. 20.

DACIA, (anc. geog.), a country which Trajan, who reduced it to a province, joined to Moesia by an admirable bridge. This country lies extended between the Danube and Carpathian mountains, from the river Tibiscus, quite to the north bend of the Danube; so as to extend thence in a direct line to the mouth of the Danube and to the Euxine; on the north-side next the Carpates, terminated by the river Hierasus, now the Pruth; on the west by the Tibiscus or Teifs; comprising a part of Upper Hungary, all Transylvania and Wallachia, and a part of Moldavia. *Daci*, the people; a name which Strabo takes to be the same with the *Davi* of Comedies; neighbours, on the west, to the *Getae*; an appellation common also in Comedies. Josephus mentions a set of religious men among the *Daci*, whom he calls *Plisti*, and compares with the *Esseni*; of these *Plisti* no other author makes any mention. *Dacicus*, the epithet; assumed by some emperors, (Juvenal). There was a *Dacia Aureliani*, a part of Illyricum, which was divided into the eastern and western; Sirmium being the capital of the latter, and Sardica of the former. But this belongs to the lower age.

DACIER, (Andrew), born at Castres in Upper Languedoc, 1651, had a great genius and inclination for learning, and studied at Saumur under Tannegui le Fevre, then engaged in the instruction of his daughter, who proved afterwards an honour to her sex. This gave rise to that mutual tenderness which a marriage of 40 years could never weaken in them. The duke of Montausier hearing of his merit, put him in the list of commentators for the use of the dauphin, and engaged him in an edition of Pompeius Festus, which he published in 1681. His edition of Horace printed at Paris in ten vols 12mo, and his other works, raised him a great reputation. He was made a member of the academy of inscriptions in 1695. When the history of Louis XIV. by medals was finished, he was chosen to present it to his Majesty; who being informed of the pains which he had taken in it, settled upon him a pension of 2000 livres, and appointed him keep-

er of the books of the king's closet in the Louvre. When that post was united to that of library-keeper to the king, he was not only continued in the privileges of his place during life, but the survivance was granted to his wife, a favour of which there had been no instance before. But the death of Madam Dacier in 1720, rendered this grant, which was so honourable to her, ineffectual. He died September 18. 1722, of an ulcer in the throat. In his manners, sentiments, and the whole of his conduct, he was a complete model of that ancient philosophy of which he was so great an admirer, and which he improved by the rules and principles of Christianity.

DACIER (Anne), daughter of Tannegui le Fevre, professor of Greek at Saumur in France. She early showed a fine genius, which her father cultivated with great care and satisfaction. After her father's death she went to Paris, whither her fame had already reached; she was then preparing an edition of Callimachus, which she published in 1674. Having shown some sheets of it to Mr Huet, preceptor to the dauphin, and to several other men of learning at the court, the work was so highly admired, that the duke of Montausier made a proposal to her of publishing several Latin authors for the use of the dauphin. She rejected this proposal at first, as a task to which she was not equal. But the duke insisted upon it; so that at last he gained her consent; upon which she undertook an edition of Florus, published in 1674. Her reputation being now spread over all Europe, Christina, queen of Sweden, ordered count Konigsmark to make her a compliment in her name: upon which Mademoiselle le Fevre sent the queen a Latin letter, with her edition of Florus: to which her majesty wrote an obliging answer; and not long after sent her another letter, to persuade her to abandon the Protestant religion, and made her considerable offers to settle at her court. In 1683 she married Mr Dacier; and soon after declared her design to the duke of Montausier and the bishop of Meaux of reconciling herself to the church of Rome, which she had entertained for some time: but as Mr Dacier was not yet convinced of the reasonableness of such a change, they retired to Castres in 1684, where they had a small estate, in order to examine the points of controversy between the Protestants and the Roman Catholics. They at last determined in favour of the latter, and made their public abjuration in 1685. After this, the king gave both husband and wife marks of his favour. In 1693, she applied herself to the education of her son and daughter, who made a prodigious progress: the son died in 1694, and the daughter became a nun in the abbey of Longchamp. She had another daughter, who had united in her all the virtues and accomplishments that could adorn the sex; but she died at 18. Her mother has immortalized her memory in the preface to her translation of the Iliad. Madam Dacier was in a very infirm state of health the two last years of her life; and died, after a very painful sickness, August 17. 1720, aged 69. She was remarkable for her firmness, generosity, equality of temper, and piety.

DACTYL, *dactylus*, a foot in the Latin and Greek poetry, consisting of a long syllable, followed by two short ones: as *carminē*.

Some say it is derived from *δακτυλος*, "a finger," because

Dacier,
Dactyl.

Dactylus
||
Dactylic.

because it is divided into three joints, the first of which is longer than the other two.

The dactyl is said to have been the invention of Dionysius or Bacchus, who delivered oracles in this measure at Delphos, before Apollo. The Greeks call it *πολιτικός*. The dactyl and spondee are the most considerable of the poetical feet; as being the measures used in heroic verse by Homer, Virgil, &c. These two are of equal time, but not equal motion. The spondee has an even, strong, and steady pace, like a trot: the dactyl resembles the nimbler strokes of a gallop.

DACTYLUS was also a sort of dance among the ancient Greeks, chiefly performed, Hesychius observes, by the athletes.

DACTYLS also denote the fruit of the palm-tree, more usually called *dates*.

DACTYLI IDÆI; the *Fingers of Mount Ida*. Concerning these, Pagan theology and fable give very different accounts. The Cretans paid divine worship to them, as those who had nursed and brought up the god Jupiter; whence it appears, that they were the same as the Corybantes and Curetes. Nevertheless Strabo makes them different; and says, that the tradition in Phrygia was, that "Curetes and Corybantes were descended from the Dactyli Idæi: that there were originally an hundred men in the island, who were called *Dactyli Idæi*; from whom sprang nine Curetes, and each of these nine produced ten men, as many as the fingers of a man's two hands; and that this gave the name to the ancestors of the Dactyli Idæi." He relates another opinion, which is, that there were but five Dactyli Idæi; who according to Sophocles, were the inventors of iron: that these five brothers had five sisters, and that from this number they took the name of *Fingers of Mount Ida*, because they were in number ten: and that they worked at the foot of this mountain. Diodorus Siculus reports the matter a little differently. He says, "the first inhabitants of the island of Crete were the Dactyli Idæi, who had their residence on mount Ida: that some said they were an hundred; others only five in number, equal to the fingers of a man's hand, whence they had the name of *Dactyli*: that they were magicians, and addicted to mystical ceremonies: that Orpheus was their disciple, and carried their mysteries into Greece: that the Dactyli invented the use of iron and fire, and that they had been recompensed with divine honours."

Diomedes the grammarian says, the Dactyli Idæi were priests of the goddess Cybele: called *Idæi*, because that goddess was chiefly worshipped on mount Ida in Phrygia; and *Dactyli*, because that, to prevent Saturn from hearing the cries of infant Jupiter, whom Cybele had committed to their custody, they used to sing certain verses of their own invention, in the Dactylic measure. See CURETES and CORYBANTES.

DACTYLIC, something that has a relation to dactyls.

Anciently, there were dactylic as well as spondaic flutes, *tibia dactylica*. The dactylic flutes consisted of unequal intervals; as the dactylic foot does of unequal measures.

DACTYLIC Verses are hexameter verses, ending in a dactyl instead of a spondee; as spondaic verses are those which have a spondee in the fifth foot instead of a dactyl.

An instance of a dactylic verse we have in Virgil;
Bis patriæ cecidere manus: quin protinus omnia
Perlegerent oculis.—ÆN. vi. 33.

DACTYLIOMANCY, DACTYLIOMANTIA, a sort of divination performed by means of a ring. The word is composed of the Greek *δακτυλιος*, "ring," of *δακτυλος*, "a finger," and *μαντια*, "divination."

Dactyliomancy consisted principally in holding a ring, suspended by a fine thread, over a round table, on the edge whereof were made divers marks with the twenty-four letters of the alphabet. The ring in shaking, or vibrating over the table, stopped over certain of the letters, which, being joined together, composed the answer required. But the operation was preceded and accompanied by several superstitious ceremonies; for first the ring was to be consecrated with a great deal of mystery: the person who held it was to be clad in linen garments to the very shoes; his head was to be shaved all round; and in his hand he was to hold vervain. And before he proceeded on any thing, the gods were first to be appeased by a formulary of prayers, &c. Ammianus Marcellinus gives the process at large in his 29th book.

DACTYLIS, Cock's-FOOT GRASS: A genus of the digynia order, belonging to the triandria class of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx is bivalved and compressed, with the one valve longer than the other, carinated, or having the rachis prominent and sharp. There are two species, the *cynosuroides*, or smooth cock's-foot grass, and the *glomeratus*, or rough cock's-foot grass. Both are natives of Britain; the first grows in marshy places, and the latter is common in meadows and pasture-grounds. This last is eat by horses, sheep, and goats; but refused by cows.

DACTYLUS, in zoology, a name given by Pliny to the PHOLAS.

DADUCHI, in antiquity, priests of Ceres. That goddess having lost her daughter Proserpine, say mythologists, began to make search for her at the beginning of the night. In order to do this in the dark, she lighted a torch, and thus set forth on her travels throughout the world: for which reason it is that she is always seen represented with a lighted torch in her hand. On this account, and in commemoration of this pretended exploit, it became a custom for the priests, at the feasts and sacrifices of this goddess, to run about in the temple, with torches after this manner; one of them took a lighted torch from off the altar, and holding it with his hand, ran with it to a certain part of the temple, where he gave it to another, saying to him, *Tibi trado*: this second ran after the like manner to another part of the temple, and gave it to the third, and so of the rest. From this ceremony the priests became denominated *daduchi*, *δαδουχοι*, *q. d.* "torch-bearers;" from *δα*, "an unctuous resinous wood, as pine, fir, &c." whereof the ancients made torches; and *εχω*, "I have, I hold."—The Athenians also gave the name *deduchus* to the high-priest of Hercules.

DÆDALA, a mountain and city of Lycia, where Dædalus was buried, according to Pliny.—Also two festivals in Bœotia, so called; one of them observed at Alalcomenos by the Plataeans in a large grove, where they exposed in the open air pieces of boiled flesh, and carefully observed whether the crows that came to prey

Dactylis
||
mancy.
||
Dædala.

Daedala,
Daedalus.

prey upon them directed their flight. All the trees upon which any of these birds alighted were immediately cut down, and with them statues were made, called *Dædala*, in honour of Dædalus. The other festival was of a more solemn kind. It was celebrated every 60 years by all the cities of Bœotia, as a compensation for the intermission of the smaller festivals, for that number of years, during the exile of the Plataeans. Fourteen of the statues called *Dædala* were distributed by lot among the Plataeans, Lebadæans, Coroneans, Orchomenians, Thespians, Thebans, Tanagræans, and Chæroneans, because they had effected a reconciliation among the Plataeans, and caused them to be recalled from exile about the time that Thebes was restored by Cassander the son of Antipater. During this festival a woman in the habit of a bride-maid accompanied a statue which was dressed in female garments, on the banks of the Eurotes. This procession was attended to the top of mount Cithæron by many of the Bœotians, who had places assigned them by lot. Here an altar of square pieces of wood cemented together like stones was erected, and upon it were thrown large quantities of combustible materials. Afterwards a bull was sacrificed to Jupiter, and an ox or heifer to Juno, by every one of the cities of Bœotia, and by the most opulent that attended. The poorest citizens offered small cattle; and all these oblations, together with the *Dædala*, were thrown into the common heap and set on fire, and totally reduced to ashes. They originated in this: When Juno, after a quarrel with Jupiter, had retired to Eubœa, and refused to return to his bed, the god, anxious for her return, went to consult Cithæron king of Plataea, to find some effectual measure to break her obstinacy. Cithæron advised him to dress a statue in woman's apparel, and carry it in a chariot, and publicly to report it was Plataea the daughter of Asopus, whom he was going to marry. The advice was followed; and Juno, informed of her husband's future marriage, repaired in haste to meet the chariot, and was easily united to him, when she discovered the artful measures he made use of to effect a reconciliation.

DÆDALUS, an Athenian, son of Eupalamus, descended from Erichtheus king of Athens. He was the most ingenious artist of his age; and to him we are indebted for the invention of the wedge, and many other mechanical instruments, and the sails of ships. He made statues which moved of themselves, and seemed to be endowed with life. Talus his sister's son promised to be as great as himself by the ingenuity of his inventions; and therefore from envy he threw him down from a window and killed him. After the murder of this youth, Dædalus, with his son Icarus, fled from Athens to Crete, where Minos king of the country gave him a cordial reception. Dædalus made a famous labyrinth for Minos, and assisted Pasiphaë the queen to gratify her unnatural passion for a bull. For this action Dædalus incurred the displeasure of Minos, who ordered him to be confined in the labyrinth which he had constructed. Here he made himself wings with feathers and wax, and carefully fitted them to his body and that of his son, who was the companion of his confinement. They took their flight in the air from Crete: but the heat of the sun melted the wax on the wings of Icarus, whose flight was too

high, and he fell into that part of the ocean which from him has been called the *Icarian Sea*. The father by a proper management of his wings, alighted at Cumae, where he built a temple to Apollo, and thence directed his course to Sicily, where he was kindly received by Cocalus, who reigned over part of the country. He left many monuments of his ingenuity in Sicily, which still existed in the age of Diodorus Siculus. He was dispatched by Cocalus, who was afraid of the power of Minos, who had declared war against him because he had given an asylum to Dædalus. The flight of Dædalus from Crete with wings is explained by observing that he was the inventor of sails, which in his age might pass at a distance for wings. He lived 1400 years before the Christian era. There were two statues of the same name; one of Sicyon son of Patroelus; the other a native of Bithynia.

DÆMON, *Δαίμων*, a name given by the ancients to certain spirits or genii, which they say appeared to men, either to do them service or to hurt them.

The Greek word *δαίμων* is derived (according to Plato, in his *Cratylus*, p. 398. *ed. Serrani*, vol. ii.) from *δαίμων*, "knowing or intelligent;" but according to others from *δαίωμαι*, "to distribute," (see the Scholiast on Homer, *Il. i. ver. 222.*) Either of these derivations agrees with the office ascribed to dæmons by the ancient heathens, as the spirit intrusted with the inspection and government of mankind. For, according to the philosophers, dæmons held a middle rank between the celestial gods and men on earth, and carried on all intercourse between them; conveying the addresses of men to the gods, and the divine benefits to men. It was the opinion of many, that the celestial divinities did not themselves interpose in human affairs, but committed the intire administration of the government of this lower world to these subaltern deities: *Neque enim pro majestate deum celestium fuerit, hac curare;* (Apuleius *de deo Socratis*, p. 677.) *Cuncta celestium voluntate, numine & auctoritate, sed dæmonum obsequio, & opera & ministerio fieri arbitrandum est;* (*Id.* p. 675.) Hence they became the objects of divine worship. "If idols are nothing," says Celsus (*apud Origen. cont. Cels. l. viii. p. 393.*) "what harm can there be to join in the public festivals? If they are dæmons, then it is certain that they are gods, in whom we are to confide, and to whom we should offer sacrifices and prayers to render them propitious."

Several of the heathen philosophers held that there were different kinds of dæmons; that some of them were spiritual substances of a more noble origin than the human race, and that others had once been men.

But those dæmons who were the more immediate objects of the established worship amongst the antient nations were human spirits, such as were believed to become dæmons or deities after their departure from their bodies. Plutarch teaches (*Vit. Romul. p. 36. ed. Paris.*) "that according to a divine nature and justice, the souls of virtuous men are advanced to the rank of dæmons; and that from dæmons, if they are properly purified, they are exalted into gods, not by any political institution, but according to right reason." The same author says in another place (*de Is. & Osir. p. 361.*), "that Isis and Osiris were, for their virtue, changed from good dæmons into gods, as were Hercules

Daemon.

Daemoniac. cules and Bacchus afterwards, receiving the united honours both of gods and dæmons." Hesiod and other poets who have recorded the ancient history or traditions on which the public faith and worship were founded, assert, that the men of the golden age, who were supposed to be very good, became dæmons after death, and dispensers of good things to mankind.

Though *dæmon* is often used in a general sense as equivalent to a *deity*, and is accordingly applied to *fate* or *fortune*, or whatever else was regarded as a god; yet those dæmons who were the more immediate objects of divine worship amongst the heathens, were human spirits; as is shown in Farmer on Miracles, chap. iii. sect. 2.

The word *dæmon* is used indifferently in a good and a bad sense. In the former sense, it was very commonly used among the ancient heathens. "We must not (says Menander) think any dæmon to be evil, hurtful to a good life, but every god to be good." Nevertheless, those are certainly mistaken who affirm, that *dæmon* never signifies an evil being till after the times of Christ. Pythagoras held dæmons who sent diseases to men and cattle (*Diogen. Laert. Vit. Pythagor. p. 514. ed. Amstel.*) Zaleucus, in his preface to his Laws (*apud Stobæum, Serm. 42.*) supposes that an evil dæmon might be present with a man, to influence him to injustice. The dæmons of Empedocles were evil spirits, and exiles from heaven; (*Plutarch, Περὶ τῶν μὴ δειν δαμονισσῶν*). And in his life of Dion, (p. 958.) he says, "It was the opinion of the ancients, that evil and mischievous dæmons, out of envy and hatred to good men, oppose whatever they do." Scarce did any opinion more generally prevail in ancient times than this, *viz.* that as the departed souls of good men became good dæmons, so the departed souls of bad men became evil dæmons.

It has been generally thought, that by *dæmons* we are to understand *devils*, in the Septuagint version of the Old Testament. Others think the word is in that version, certainly applied to the ghosts of such dead men as the heathens deified, in Deut. xxxii. 17. Ps. cvi. 37. That *dæmon* often bears the same meaning in the New Testament, and particularly in Acts xvii. 18. 1 Cor. x. 21. 1 Tim. iv. 1. Rev. ix. 13. is shown at large by Mr Joseph Mede (*Works, p. 623, et seq.*) That the word is applied *always* to human spirits in the New Testament, Mr Farmer has attempted to show in his Essay on Daemoniacs, p. 208, *et seq.* As to the meaning of the word *dæmon* in the fathers of the Christian church, it is used by them in the same sense as it was by the heathen philosophers, especially the latter Platonists; that is, sometimes for departed human spirits, and at other times for such spirits as had never inhabited human bodies. In the fathers, indeed, the word is more commonly taken in an evil sense, than in the ancient philosophers. Besides the two forementioned kinds of dæmons, the fathers, as well as the ancient philosophers, held a third, *viz.* such as sprang from the congress of superior beings with the daughters of men. In the theology of the fathers, these were the worst kind of dæmons.

Different orders of dæmons had different stations and employments assigned them by the ancients. Good dæmons were considered as the authors of good to mankind; evil dæmons brought innumerable evils both

upon men and beasts. Amongst evil dæmons there was a great distinction with respect to the offices assigned them; some compelled men to wickedness, others stimulated them to madness. See DÆMONIAC.

Much has been said concerning the dæmon of Socrates. He pretended to his friends and disciples, and even declared to the world, that a friendly spirit, whom he called his *dæmon*, directed him how to act on every important occasion in his life, and restrained him from imprudence of conduct.

In contemplating the character of this great philosopher, while we admire him as the noblest pattern of virtue and moral wisdom that appeared in the heathen world, we are naturally led to inquire, whether what he gave out concerning his dæmon were a trick of imposture, or the reverie of a heated imagination, or a sober and true account of a favour which heaven designed to confer on so extraordinary a man.

To ascertain in this case the object of our inquiries, is by no means so easy as the superficial thinker may be apt to imagine. When we consider the dignity of sentiment and simplicity of manners which Socrates displayed through the general tenor of his life, we cannot readily bring ourselves to think that he could be capable of such a trick of imposture. Nothing of the wildness of an enthusiast appears in his character; the modesty of his pretensions, and the respect which in his conversation and conduct he uniformly testified for the ordinary duties of social life, sufficiently prove that he was free from the influence of blind enthusiasm: we cannot infer, therefore, that, like the astronomer in Rasselas, he was deceived with respect to his dæmon by an overheated imagination. It is no less difficult to believe, that God would distinguish an heathen in so eminent a manner, and yet leave him uninstructed in the principles of true religion. Surely, if ever scepticism be reasonable, it must be in such matters as the present.

Yet, if it be still insisted, that some one of these three notions concerning the dæmon of Socrates must be more probable than the others; we would rather esteem Socrates an enthusiast in this instance, than degrade him to the base character of an impostor, or suppose that a spiritual being actually revealed himself to the philosopher, and condescended to become his constant attendant and counsellor. People are often under the influence of an over-heated imagination with regard to some one thing, and cool and sober as to every thing else.

DÆMONIAC (from *dæmon*), a human being whose volition and other mental faculties are overpowered and restrained, and his body possessed and actuated by some created spiritual being of superior power.

Such seems to be the determinate sense of the word; but it is disputed whether any of mankind ever were in this unfortunate condition.

It is generally agreed, that neither good nor evil spirits are known to exert such authority at present over the human race: but in the ancient heathen world, and among the Jews, particularly in the days of our Saviour, evil spirits at least are thought by many to have been more troublesome.

The Greeks and Romans imagined, that their deities, to reveal future events, frequently entered into the prophet or prophetess who was consulted, over-

powered possession.

Daemoniac.

1 Definition

2 Dispute concerning daemoniacs

3 Notions of the Greeks & Romans concerning possession.

Dæmoniac. powered their faculties, and uttered responses with their organs of speech. Apollo was believed to enter into the Pythoness, and to dictate the prophetic answers received by those who consulted her. Other oracles besides that of Delphi were supposed to unfold futurity by the same machinery. And in various other cases, either malignant dæmons or benevolent deities were thought to enter into and to actuate human beings. The *Lymphatici*, the *Cerriti*, the *Larvati*, of the Romans, were all of this description; and the Greeks, by the use of the word *δαίμονιζομενοι*, show that they referred to this cause the origin of madness. Among the ancient heathens, therefore, it appears to have been a generally received opinion, that superior beings entered occasionally into men, overpowered the faculties of their minds, and actuated their bodily organs. They might imagine that this happened in instances in which the effects were owing to the operation of different causes; but an opinion so generally prevalent had surely some plausible foundation.

4
Of the
Jews.

The Jews too, if we may trust the sacred writings of Josephus, appear to have believed in dæmoniacal possession. The case of Saul may be recollected as one among many in which superior created beings were believed by the Jews to exert in this manner their influence over human life. The general tenor of their history and language, and their doctrines concerning good and evil spirits, prove the opinion of dæmoniacal possession to have been well known and generally received among them.

5
Of mankind
in general
in the days
of our Sa-
viour.

In the days of our Saviour, it would appear that dæmoniacal possession was very frequent among the Jews and the neighbouring nations. Many were the evil spirits whom Jesus is related in the gospels to have ejected from patients that were brought unto him as possessed and tormented by those malevolent dæmons. His apostles too, and the first Christians, who were most active and successful in the propagation of Christianity, appear to have often exerted the miraculous powers with which they were endowed on similar occasions. The dæmons displayed a degree of knowledge and malevolence which sufficiently distinguished them from human beings: and the language in which the dæmoniacs are mentioned, and the actions and sentiments ascribed to them in the New Testament, show that our Saviour and his apostles did not consider the idea of dæmoniacal possession as being merely a vulgar error concerning the origin of a disease or diseases produced by natural causes.

6
Jesus
Christ and
his apostles
must have
believed
dæmonia-
cal posses-
sion to be
real.

The more enlightened cannot always avoid the use of metaphorical modes of expression; which, though founded upon error, have yet been so established in language by the influence of custom, that they cannot be suddenly dismissed. When we read in the book of Joshua, that the sun on a certain occasion stood still, to allow that hero time to complete a victory; we easily find an excuse for the conduct of the sacred historian, in accommodating his narrative to the popular ideas of the Jews concerning the relative motions of the heavenly bodies. In all similar instances, we do not complain much of the use of a single phrase, originally introduced by the prevalence of some groundless opinion, the falsity of which is well known to the writer.

But in descriptions of characters, in the narration of

facts, and in the laying down of systems of doctrine, **Dæmoniac.** we require different rules to be observed. Should any person, in compliance with popular opinions, talk in serious language of the existence, dispositions, declarations, and actions of a race of beings whom he knew to be absolutely fabulous, we surely could not praise him for candid integrity; we must suppose him to be either exulting in irony over the weak credulity of those around him, or taking advantage of their weakness, with the dishonesty and the selfish views of an impostor. And if he himself should pretend to any connection with this imaginary system of beings, and should claim, in consequence of his connection with them, particular honours from his contemporaries; whatever might be the dignity of his character in all other respects, nobody could hesitate even for a moment to brand him as an impostor of the basest character.

Precisely in this light must we regard the conduct of our Saviour and his apostles, if the idea of dæmoniacal possession were to be considered merely as a vulgar error. They talked and acted as if they believed that evil spirits had actually entered into those who were brought to them as possessed with devils, and as if those spirits were actually expelled by their authority out of the unhappy persons whom they had possessed. They expected, they demanded too, to have their professions and declarations believed, in consequence of their performing such mighty works, and to be honoured as having thus triumphed over the powers of hell. The reality of dæmoniacal possession stands upon the same evidence with the gospel system in general.

Neither is there any thing absurd or unreasonable in this doctrine. It does not appear to contradict those ideas which the general appearance of nature and the series of events suggest concerning the benevolence and wisdom of the Deity, and the counsels by which he regulates the affairs of the universe. We often fancy ourselves able to comprehend things to which our understanding is wholly inadequate: we persuade ourselves, at times, that the whole extent of the works of the Deity must be well known to us, and that his designs must always be such as we can fathom. We are then ready, whenever any difficulty arises to us, in considering the conduct of providence, to model things according to our own ideas; to deny that the Deity can possibly be the author of things which we cannot reconcile; and to assert, that he must act on every occasion in a manner consistent with our narrow views. This is the pride of reason; and it seems to have suggested the strongest objections that have been at any time urged against the reality of dæmoniacal possession. But the Deity may surely connect one order of his creatures with another. We perceive mutual relations and a beautiful connection to prevail through all that part of nature which falls within the sphere of our observation. The inferior animals are connected with mankind, and subjected to their authority, not only in instances in which it is exerted for their advantage, but even where it is tyrannically abused to their destruction. Among the evils to which mankind have been subjected, why might not their being liable to dæmoniacal possession be one? While the Supreme Being retains the sovereignty of the universe,

7
Reasonable-
ness of this
doctrine.

Dæmoniac. universe, he may employ whatever agents he thinks proper in the execution of his purposes: he may either commission an angel or let loose a devil; as well as bend the human will, or communicate any particular impulse to matter.

All that revelation makes known, all that human reason can conjecture, concerning the existence of various orders of spiritual beings, good and bad, is perfectly consistent with, and even favourable to, the doctrine of dæmoniacal possession. It was generally believed through the ancient heathen world; it was equally well known to the Jews, and equally respected by them; it is mentioned in the New Testament in such language, and such narratives are related concerning it, that the gospels cannot well be regarded in any other light than as pieces of imposture, and Jesus Christ must be considered as a man who dishonestly took advantage of the weakness and ignorance of his contemporaries, if this doctrine be nothing but a vulgar error: it teaches nothing inconsistent with the general conduct of Providence; it is not the caution of philosophy, but the pride of reason, that suggests objections against this doctrine.

8 Arguments of the Antidæmonians. Those, again, who are unwilling to allow that angels or devils have ever intermeddled so much with the concerns of human life, urge a number of specious arguments in opposition to these.

9 The cases in which the Greeks and Romans supposed dæmoniacal possession, was only instances of madness, &c. The Greeks and Romans of old, say they, did believe in the reality of dæmoniacal possession. They supposed that spiritual beings did at times enter into the sons or daughters of men, and distinguish themselves in that situation by capricious freaks, deeds of wanton mischief, or prophetic enunciations. But in the instances in which they supposed this to happen, it is evident that no such thing took place. Their accounts of the state and conduct of those persons whom they believed to be possessed in this supernatural manner, show plainly that what they ascribed to the influence of dæmons were merely the effects of natural diseases. Whatever they relate concerning the *larvati*, the *ceriti*, and the *lymphatici*, shows that these were merely people disordered in mind, in the same unfortunate situation with those madmen and idiots and melancholy persons whom we have among ourselves. Festus describes the *Larvati* as being *furiosi et mente moti*. Horace says,

*Hellade percussâ, Marius cum præcipitat se,
Cerritus fuit?*

Plato, in his *Simæus*, says, *ἡδὺς γὰρ ἐννοῦς ἐραπίεται μανικὸς ἐνδούκ, ἀληθούς*. Lucian describes dæmoniacs as lunatic, and as staring with their eyes, foaming at the mouth, and being speechless.

10 The same is true of the Dæmoniacs of the New Testament. It appears still more evidently, that all the persons spoken of as possessed with devils in the New Testament, were either mad or epileptic, and precisely in the same condition with the madmen and epileptics of modern times. The Jews, among other reproaches which they threw out against our Saviour, said, *He hath a devil, and is mad; why hear ye him?* The expressions *he hath a devil, and is mad*, were certainly used on this occasion as synonymous. With all their virulence, they would not surely ascribe to him at once two things that were inconsistent and contradictory. Those who thought more favourably of the character of Jesus, asserted concerning his discourses, in reply to

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his adversaries, *These are not the words of him that hath a demon*; meaning, no doubt, that he spoke in a more rational manner than a madman could be expected to speak. The Jews appear to have ascribed to the influence of dæmons, not only that species of madness in which the patient is *raving and furious*, but also *melancholy* madness. Of John, who secluded himself from intercourse with the world, and was distinguished for abstinence and acts of mortification, they said, *He hath a demon*. The youth, whose father applied to Jesus to free him from an evil spirit, describing his unhappy condition in these words, *Have mercy on my son, for he is lunatic and sore vexed with a demon; for oft times he falleth into the fire, and oft into the water*, was plainly epileptic. Every thing indeed that is related in the New Testament concerning dæmoniacs, proves that they were people affected with such natural diseases as are far from being uncommon among mankind in the present age. When the symptoms of the disorders cured by our Saviour and his apostles as cases of dæmoniacal possession, correspond so exactly with those of diseases well known as natural in the present age, it would be absurd to impute them to a supernatural cause. It is much more consistent with common sense and sound philosophy to suppose, that our Saviour and his apostles wisely, and with that condescension to the weakness and prejudices of those with whom they conversed, which so eminently distinguished the character of the Author of our holy religion, and must always be a prominent feature in the character of the true Christian, adopted the vulgar language in speaking of those unfortunate persons who were groundlessly imagined to be possessed with dæmons, though they well knew the notions which had given rise to such modes of expression to be ill-founded, than to imagine that diseases, which arise at present from natural causes, were produced in days of old by the intervention of dæmons, or that evil spirits still continue to enter into mankind in all cases of madness, melancholy, or epilepsy.

Besides, it is by no means a sufficient reason for receiving any doctrine as true, that it has been generally received through the world. Error, like an epidemical disease, is communicated from one to another. In certain circumstances, too, the influence of imagination predominates, and restrains the exertions of reason. Many false opinions have extended their influence through a very wide circle, and maintained it long. On every such occasion as the present, therefore, it becomes us to inquire, not so much how generally any opinion has been received, or how long it has prevailed, as from what causes it has originated, and on what evidence it rests.

11 Inference from the analogy of nature. When we contemplate the frame of nature, we behold a grand and beautiful simplicity prevailing through the whole: Notwithstanding its immense extent, and though it contains such numberless diversities of being; yet the simplest machine constructed by human art does not display easier simplicity, or an happier connection of parts. We may therefore venture to draw an inference, by analogy, from what is observable of the order of nature in general to the present case. To permit evil spirits to intermeddle with the concerns of human life, would be to break through that order which the Deity appears to have established through his

4 N

works;

Dæmoniacks works; it would be to introduce a degree of confusion unworthy of the wisdom of Divine Providence.

Daille.

Such are the most rational arguments that have been urged on both sides in this controversy. Perhaps the dæmonianists have the stronger probabilities on their side; but we will not presume to take upon ourselves the office of arbitrators in the dispute.

DÆMONIACS, in church-history, a branch of the Anabaptists; whose distinguishing tenet is, that the devils shall be saved at the end of the world.

DAFFODIL. See **NARCISSUS**.

DAGNO, a town of Turkey in Europe, in Albania, with a bishop's see. It is the capital of the district of Ducagini, and is seated on the rivers Drino and Nero, near their confluence. It is 15 miles south-east of Scutari, and 15 north-east of Alessio. E. Long. 19. 48 N. Lat. 42. 0.

DAGO, or **DAGHO**, an island in the Baltic Sea, on the coast of Livonia, between the gulf of Finland and Riga. It is of a triangular figure, and may be about 20 miles in circumference. It has nothing considerable but two castles, called *Dagger-wort* and *Paden*. E. Long. 22. 30. N. Lat. 58. 48.

*See I Sam. chap. v.

DAGON, the false god of Ashdod*, or, as the Greeks call it, *Azotus*. He is commonly represented as a monster, half man and half fish; whence most learned men derive his name from the Hebrew *dag*, which signifies "a fish." Those who make him to have been the inventor of *bread-corn*, derive his name from the Hebrew *Dagan*, which signifies *frumentum*; whence Philo Biblius calls him *Zeus Agalios*, *Jupiter Aratrius*.

This deity continued to have a temple at Ashdod during all the ages of idolatry to the time of the Maccabees; for the author of the first book of Maccabees tells us, that "Jonathan, one of the Maccabees, having beaten the army of Apollonius, Demetrius's general, they fled to Azotus, and entered into Bethdagon (the temple of their idol); but that Jonathan set fire to Azotus, and burnt the temple of Dagon and all those who had fled into it."

Dagon, according to some, was the same with Jupiter, according to others Saturn, according to others Venus, and according to most Neptune.

DAHGESTAN, a country of Asia, bounded by Circassia on the north, by the Caspian Sea on the east, by Chirvein a province of Persia on the south, and by Georgia on the west. Its chief towns are Tarku and Derbent, both situated on the Caspian Sea.

DAHOMÉ, a kingdom of Africa, on the coast of Guinea, to the north of Whidah, or Fida. The king of this country conquered Whidah, and very much disturbed the slave-trade of the Europeans.

DAILLE (John), a Protestant minister near Paris, was one of the most learned divines of the 17th century, and was the most esteemed by the Catholics of all the controversial writers among the Protestants. He was tutor to two of the grandsons of the illustrious Mr Du Plessis Mornai. Mr Daille having lived 14 years with so excellent a master, travelled into Italy with his two pupils: one of them died abroad; with the other he saw Italy, Switzerland, Germany, Flanders, Holland, and England, and returned in 1621. He was received minister in 1623, and first exercised his office in the family of Mr Du Plessis Mornai; but

this did not last long, for that lord died soon after. The memoirs of this great man employed Mr Daille the following year. In 1625 he was appointed minister of the church of Samur, and in 1626 removed to Paris. He spent all the rest of his life in the service of this last church, and composed several works. His first piece was his masterpiece, and an excellent work, *Of the Use of the Fathers*, printed 1631. It is a strong chain of reasoning, which forms a moral demonstration against those who would have religious disputes decided by the authority of the fathers. He died in 1670, aged 77.

DAIRI, or **DAIRO**, in the history of Japan, is the sovereign pontiff of the Japanese; or, according to Kæmpfer, the hereditary ecclesiastical monarch of Japan. In effect, the empire of Japan is at present under two sovereigns, viz. an ecclesiastical one called the *dairo*, and a secular one who bears the title of *kubo*. The last is the emperor, and the former the oracle of the religion of the country.

DAIRY, in rural affairs, a place appropriated for the management of milk, and the making of butter, cheese, &c. See **BUTTER**, **CHEESE**, &c.

The dairy-house should always be kept in the neatest order, and so situated as that the windows or lattices never front the south, south-east, or south-west. Lattices are also to be preferred to windows, as they admit a more free circulation of the air than glazed lights possibly can do. It has been objected, that they admit cold air in winter and the sun in summer; but the remedy is easily obtained, by making a frame the size of or somewhat larger than the lattice, and constructing it so as to slide backward and forward at pleasure. Packthread strained across this frame, and oiled cap paper pasted thereon, will admit the light, and keep out the sun and wind.

It is hardly possible in the summer to keep a dairy-house too cool; on which account none should be situated far from a good spring or current of water. They should be neatly paved either with red brick or smooth hard stone; and laid with a proper descent, so that no water may lodge. This pavement should be well washed in the summer every day, and all the utensils belonging to the dairy should be kept perfectly clean. Nor should we ever suffer the churns to be scalded in the dairy, as the steam that arises from hot water will injure the milk. Nor should cheese be kept therein, nor rennet for making cheese, nor a cheese-press be fixed in a dairy, as the whey and curd will diffuse their acidity throughout the room.

The proper receptacles for milk are earthen pans, or wooden vats or trundles; but none of these should be lined with lead, as that mineral certainly contains a poisonous quality, and may in some degree affect the milk: but if people are so obstinate as to persist in using them, they should never forget to scald them, scrub them well with salt and water, and to dry them thoroughly, before they deposit the milk therein. Indeed all the utensils should be cleaned in like manner before they are used; and if after this, they in the least degree smell sour, they must undergo a second scrubbing before they are fit for use.

DAKIR, in our statutes, is used for the twentieth part of a last of hides. According to the statute of

Dairi
Dakir.

Dale
||
Dalem.

51 Hen. III. *De compositione ponderum & mensurarum*, a last of hides consists of twenty dakirs, and every dakir of ten hides. But by 1 Jac. cap. 33. one last of hides or skins is twelve dozen. See DICKER.

DAIS, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 31st order, *Veprecula*. The involucre is tetraphyllous; the corolla quadrifid or quinquefid; the fruit a monospermous berry.

DAISY. See BELLIS.

DALACA, an island of the Red Sea, over-against the coast of Abex, about 72 miles in length and 15 in breadth. It is very fertile, populous, and remarkable for a pearl fishery. The inhabitants are negroes, and great enemies to the Mahometans. There is a town of the same name seated over against Abassia.

DALBERGIA, in botany; a genus of the octandria order, belonging to the diadelphia class of plants. There are two filaments or stamina quadrifid at top. The fruit is pedicellated, not gaping, leguminous, membrano-compressed, and bearing seeds.

DALEA, a province of Sweden, bounded on the north by Dalecarlia, on the east by the Wermeland and the lake Wener, on the south by Gothland, and on the north by Norway and the sea.

DALEBURG, a town of Sweden, and capital of the province of Dalia, seated on the western bank of the lake Wener, 50 miles north of Gottenburg. E. Long. 13. 0. N. Lat. 59. 0.

DALECARLIA, a province of Sweden, so called from a river of the same name, on which it lies, near Norway. It is divided into three parts, which they call *valleys*; and is about 175 miles in length and 100 in breadth. It is full of mountains, which abound in mines of copper and iron, some of which are of a prodigious depth. The towns are very small, and Idra is the capital. The inhabitants are rough, robust, and warlike; and all the great revolutions in Sweden had their rise in this province. The river rises in the Dofrine mountains, and, running south-east thro' the province, falls into the gulph of Bothnia.

DALECHAMP (James), a physician in Normandy, in the 16th century, wrote a History of Plants, and was well skilled in polite learning. He wrote notes on Pliny's Natural History, and translated Athenæus into Latin. He practised physic at Lyons from 1552 to 1558, when he died, aged 75.

DALECHAMPIA, in botany: A genus of the adelphia order, belonging to the monœcia class of plants; and in the natural method ranking under the 38th order, *Tricocœ*. The involucre of the male is common and quadripartite; the calyces hexaphyllous; corolla none; the nectarium laminated or scaly; the stamina monodelphous or coalited at the base, and polyandrous or numerous. The female involucre is common and triphyllous; corolla none; style one; the capsule tricocous.—There is but one species, *viz.* the scandens, a native of Jamaica. It is a climbing plant, which rises to a considerable height; and is remarkable for nothing but having its leaves armed with bristly hairs, which sting the hands of those who unwarily touch them.

DALEM, a town of the United Provinces, and capital of a district of the same name. It was taken by

the French in 1672, who demolished the fortifications. It is seated on the river Bervine, five miles north-east of Liege. E. Long. 5. 59. N. Lat. 50. 40.

D'ALEMBERT. See ALEMBERT.

DALEN (Cornelius Van), an eminent engraver, who flourished about the year 1640. He was a native of Holland; but under what master he learned the art of engraving, is uncertain. It is difficult to form a proper judgment of his merit; for sometimes his prints resemble those of Cornelius Vischer, of Lucas Vosterman, of P. Pontius, of Bollwert, and other masters. A set of antique statues, engraved by him, are in a bold, free style, as if founded upon that of Goltzius; others, again, seem imitations of that of Francis Poilly. In all these different manners he has succeeded; and they plainly manifest the great command he had with his graver, for he worked with that instrument only. He engraved a great variety of portraits, some of which are very valuable, and form the best as well as the larger part of his works.

DALKEITH, a town of Scotland, in Mid-Lothian, six miles south-east of Edinburgh; W. Long. 2. 20. N. Lat. 55. 50. It is the principal residence of the Duke of Buccleugh, who has here a noble house and extensive parks. In this house, which at the time was the head-quarters of General Monk, the restoration of Charles II. was planned.—The Duke's eldest son has the title of Earl of Dalkeith. Here is a considerable market weekly on Thursdays, which supplies in part both Edinburgh and Glasgow.

DALMATIA, a province of Europe, bounded on the north by Bosnia, on the south by the gulph of Venice, on the east by Servia, and on the west by Morlachia. Spalatro is the capital of that part belonging to the Venetians; and Ragusa, of a republic of that name; the Turks have a third, whose capital is Herzegovina. The air is wholesome, and the soil fruitful; and it abounds in wine, corn, and oil.

DALTON, a town of Lancashire, in England. It is seated on the spring-head of a river, in a champaign country, not far from the sea; and the ancient castle is made use of to keep the records, and prisoners for debt in the liberty of Furnes. W. Long. 3. 0. N. Lat. 54. 18.

DALTON (John), D. D. an eminent divine and poet, was the son of the Rev. Mr John Dalton rector of Dean near Whitehaven in Cumberland, where he was born in 1709. He was educated at Queen's College, Oxford; and became tutor or governor to the Lord Beauchamp, only son of the Earl of Hertford, late Duke of Somerset; during which time he adapted Milton's admirable Mask of Comus to the stage, by a judicious insertion of several songs and different passages selected from other of Milton's works, as well as of several songs and other elegant additions of his own, suited to the characters and to the manner of the original author. During the run of this piece he industriously sought out a grand-daughter of Milton's, oppressed both by age and poverty; and procured her a benefit from it, the profits of which amounted to a very considerable sum. He was promoted by the king to a prebend of Worcester; where he died on the 22d of July 1763. Besides the above, he wrote a descriptive poem, addressed to two ladies at their return from view-

D'Alembert
||
Dalton.

Dam
Damascus.

ing the coal-mines near Whitehaven; and Remarks on 12 historical designs of Raphael, and the *Museum Graecum & Egyptiacum*.

DAM, a boundary or confinement, as to *dam* up or *dam* out. *Infra damnum suum*, within the bounds or limits of his own property or jurisdiction.

DAMA, in zoology. See CERVUS.

DAMAGE, in law, is generally understood of a hurt or hindrance attending a person's estate: but, in common law, it is a part of what the jurors are to inquire of in giving verdict for the plaintiff or defendant in a civil action, whether real or personal; for after giving verdict on the principal cause, they are likewise asked their consciences touching costs and damages, which contain the hindrances that one party hath suffered from the wrong done him by the other. See COSTS.

DAMAN, a maritime town of the East Indies, at the entrance into the gulph of Cambay. It is divided by the river Daman into two parts; one of which is called *New Daman*, and is a handsome town, well fortified, and defended by a good Portuguese garrison. The other is called *Old Daman*, and is very ill built. There is a harbour between the two towns, defended by a fort. It was taken by the Portuguese in 1535. The Mogul has attempted to get possession of it several times, but always without effect. E. Long. 72. 35. N. Lat. 21. 5.

DAMASCENUS (John), an illustrious father of the church in the 8th century, born at Damascus, where his father, though a Christian, enjoyed the office of counsellor of state to the Saracen caliph; to which the son succeeded. He retired afterwards to the monastery of St Sabas, and spent the remainder of his life in writing books of divinity. His works have been often printed: but the Paris edition in 1712, two vols folio, is esteemed the best.

DAMASCIUS, a celebrated heathen philosopher, born at Damascus in the year 540, when the Goths reigned in Italy. He wrote the life of his master Isidorus; and dedicated it to Theodora, a very learned and philosophical lady, who had also been a pupil to Isidorus. In this life, which was copiously written, he frequently made oblique attacks on the Christian religion. We have nothing remaining of it but some extracts preserved by Photius. Damascius succeeded Theon in the rhetorical school, and Isidorus in that of philosophy, at Athens.

DAMASCUS, a very ancient city of Syria in Asia, seated in E. Long. 47. 18. N. Lat. 35. 0. Some of the ancients suppose this city to have been built by one Damascus, from whom it took its name; but the most generally received opinion is, that it was founded by Uz the eldest son of Aram. It is certain, from Gen. xiv. 5. that it was in being in Abraham's time, and consequently may be looked upon as one of the most ancient cities in the world. In the time of king David it seems to have been a very considerable place; as the sacred historian tells us, that the Syrians of Damascus sent 20,000 men to the relief of Hadadezer king of Zobah. We are not informed whether at that time it was governed by kings, or was a republic. Afterwards, however, it became a monarchy which proved very troublesome to the kingdom of Israel, and would even have destroyed it entirely, had not the Deity miraculously interposed in its behalf. At last this

monarchy was destroyed by Tiglath Pileser king of Assyria, and Damascus was never afterwards governed by its own kings. From the Assyrians and Babylonians it passed to the Persians, and from them to the Greeks under Alexander the Great. After his death it belonged, with the rest of Syria, to the Seleucidæ; till their empire was subdued by the Romans, about 70 years before Christ. From them it was taken by the Saracens in 633; and it is now in the hands of the Turks.—Notwithstanding the tyranny of the Turkish government, Damascus is still a considerable place. It is situated in a plain of so great extent, that one can but just discern the mountains which compass it on the other side. It stands on the west side of the plain, about two miles from the head of the river Barrady, which waters it. It is of a long, strait figure, extending about two miles in length, adorned with mosques and steeples, and encompassed with gardens computed to be full 30 miles round. The river Barrady, as soon as it issues from the clefts of the Antilibanus into the plain, is divided into three streams, whereof the middlemost and biggest runs directly to Damascus, and is distributed to all the cisterns and fountains of the city. The other two seem to be artificial; and are drawn round, one to the right and the other to the left, on the borders of the gardens, into which they are let by little currents, and dispersed every where. The houses of the city, whose streets are very narrow, are all built on the outside either with sun-burnt brick, or Flemish wall: and yet it is no uncommon thing to see the gates and doors adorned with marble portals, carved and inlaid with great beauty and variety; and within these portals to find large square courts beautified with fragrant trees and marble fountains, and compassed round with splendid apartments. In these apartments the ceilings are usually richly painted and gilded; and their duans, which are a sort of low stages seated in the pleasantest part of the room, and elevated about 16 or 18 inches above the floor, whereon the Turks eat, sleep, say their prayers, &c. are floored, and adorned on the sides with variety of marble mixed in mosaic knots and mazes, spread with carpets, and furnished all round with bolsters and cushions, to the very height of luxury. In this city are shown the church of John the Baptist, now converted into a famous mosque; the house of Ananias, which is only a small grotto or cellar wherein is nothing remarkable; and the house of Judas with whom Paul lodged. In this last is an old tomb, supposed to be that of Ananias; which the Turks hold in such veneration, that they keep a lamp continually burning over it. There is a castle belonging to Damascus, which is like a little town, having its own streets and houses; and in this castle a magazine of the famous Damascus steel was formerly kept. The fruit-tree called the *damascene*, and the flower called the *damask rose*, were transplanted from the gardens belonging to this city; and the silks and linens known by the name of *damasks*, were probably invented by the inhabitants.

DAMASCUS Steel. See DAMASK.

DAMASIA (anc. geog.), a town of Vindelicia on the Licus. Afterwards called *Augusta*. Now *Augsburg* in Suabia, on the Lech. E. Long. 10. 50. N. Lat. 48. 20.

DAMASK, a sort of filken stuff, having some parts raised

Damask raised above the ground, representing flowers or other figures. **Damask** should be of dressed silks, both in warp and woof. It has its name from its being originally brought from Damascus in Syria.

Damietta

There is also a stuff in France called the *caffart damask*, made in imitation of the true damask, having woof of hair, coarse silk, thread, wool, or cotton. Some have the warp of silk and the woof of thread; others are all thread or all wool.

DAMASK is also a kind of wrought linen, made in Flanders, so called, because its large flowers resemble those of damasks. It is chiefly used for tables; a table-cloth and a dozen of napkins are called a *damask-service*.

DAMASK is also applied to a very fine steel, in some parts of the Levant, chiefly at Damascus in Syria; whence its name. It is used for sword and cutlass blades, and is finely tempered.

DAMASKEENING, or **DAMASKING**, the art or operation of beautifying iron, steel, &c. by making incisions therein, and filling them up with gold or silver wire; chiefly used for adorning sword-blades, guards and grips, locks of pistols, &c.

Damaskeening partakes of the mosaic, of engraving, and of carving: like the mosaic, it has inlaid work; like engraving, it cuts the metal, representing divers figures; and, as in chasing, gold and silver is wrought in relievo. There are two ways of damasking: the one, which is the finest, is when the metal is cut deep with proper instruments, and inlaid with gold and silver wire: the other is superficial only.

DAMELOPRE, a kind of bilander, used in Holland for conveying merchandise from one canal to another; being very commodious for passing under the bridges.

DAMIANISTS, in church-history, a branch of the ancient acephali-severitæ. They agreed with the catholics in admitting the VIth council, but disowned any distinction of persons in the Godhead; and professed one single nature, incapable of any difference: yet they called God "the Father, Son, and Holy Ghost."

DAMIETTA, a port-town of Egypt, situated on the eastern mouth of the river Nile, four miles from the sea, and 100 miles north of Grand Cairo. E. Long. 32. and N. Lat. 31. The present town stands upon a different site from the ancient Damietta so repeatedly attacked by the European princes. The latter, according to Abulfeda, was "a town surrounded by walls, and situated at the mouth of the eastern branch of the Nile." Stephen of Byzantium informs us, that it was called *Thamiatia* under the government of the Greeks of the lower empire, but that it was then very inconsiderable. It increased in importance every day, in proportion as Pelusium, which was frequently plundered, lost its power. The total ruin of that ancient town occasioned the commerce of the eastern parts of the Delta to be transferred to Damietta. It was, however, no longer a place of strength, when, towards the year 238 of the Hegira, the emperors of Constantinople took possession of it a second time. The importance of a harbour so favourably situated opened the eyes of the caliphs. In the year 244 of the Hegira, Elmetouakkel surrounded it with strong

walls. This obstacle did not prevent Roger king of Sicily from taking it from the Mahometans in the year 550 of the Hegira. He did not, however, long enjoy his conquest. Salah Eddin, who about that period mounted the throne of Egypt, expelled the Europeans from Damietta. Fifteen years after they returned to besiege it; but this able sultan baffled all their efforts. Notwithstanding their land army was supported by a fleet of 1200 sail, they were obliged to make a disgraceful retreat.

It was the fate of this place to be constantly besieged. In the year 615 of the Hegira, under the reign of Eladel, the crusaders attacked it with a very considerable force. They landed on the western shore of the Nile; and their first care was to surround their camp with a ditch and pallisado. The mouth of the river was defended by two towers, furnished with numerous garrisons. An enormous iron chain, stretching from one side to the other, hindered the approach of vessels. The crusaders carried by storm the tower on the same side with their camp, broke the chain, and opened the entrance of the river for their fleet. Nejm Eddin, the sultan's son, who was encamped near Damietta, covered it with an army. To stop the enemies vessels he threw a bridge over the Nile. The Franks overturned it, and the prince adopted the measure of choking up the mouth of the river, which he almost rendered impassable by several large boats he sunk there. After alternate and various successes, many bloody battles, and a siege of 17 months, the Christian princes took Damietta by storm. They did not, however, long enjoy the fruit of so much blood spilt, and of an armament which had cost immense sums. Completely invested near the canal of Achmoun, by the waters of the Nile and by the Egyptian army, they purchased their lives and their liberty by the sacrifice of their conquest.

One-and-thirty years after this defeat St Louis carried Damietta without striking a stroke. The Arabs, however, soon recovered it; but tired of keeping a place which continually drew upon them the most warlike nations of Europe, they totally destroyed it, and rebuilt it further up in the country. This modern Damietta, first called *Menchie*, as Abulfeda tells us, has preserved the memory of its origin in a square still called by that name. Writers in general have confounded these two towns, ascribing to the one the attributes of the other. The modern Damietta is rounded in a semicircle on the eastern bank of the Nile, two leagues and a half from the mouth of it. The eye, placed at one of the extremities of the crescent, takes in its whole extent. It is reckoned to contain 80,000 souls. It has several squares, the most considerable of which has retained the name of *Menchie*. The bazars are filled with merchants. Spacious *okals* or *khans*, collecting under their porticos the stuffs of India, the silks of mount Lebanon, sal-ammoniac, and pyramids of rice, proclaim that it is a commercial town. The houses, those in particular which are on the banks of the river, are very lofty. They have in general handsome saloons built on the top of their terraces, which are cheerful belvideres, open to every wind, where the Turk, effeminately reclining on a sopha, passes his life in smoking.

Damietta. king, in looking on the sea, which bounds the horizon on one side, on the great lake that extends itself on the other, and on the Nile, which, running between them, traverses a rich country. Several large mosques, adorned with lofty minarets, are dispersed over the town. The public baths, lined with marble, are distributed in the same manner as those of Grand Cairo. The linen you are served with is clean, and the water very pure. The heat and the treatment in them, so far from injuring the health, serve to strengthen, nay even to improve it, if used with moderation. This custom, founded on experience, is general in Egypt.

The port of Damietta is continually filled with a multitude of boats and small vessels. Those called *Scherms* serve to convey the merchandise on board the ships in the road, and to unload them; the others carry on the coasting trade. This town carries on a great trade with Syria, with Cyprus, and Marseilles. The rice called *Mezelaoni*, of the finest quality there is in Egypt, is cultivated in the neighbouring plains. The exports of it amount annually to about six millions of livres. The other articles of the produce of the country are linens, sal ammoniac, corn, &c. A ruinous policy for the country prohibits the exportation of this last article; but the law is evaded, and it passes under the name of rice.

The Christians of Aleppo and Damascus, settled in this town, have for several ages carried on its principal commerce. Turkish indolence, content with extorting from them from time to time, suffers them to become rich. The exportation of rice to foreign countries is prohibited; but by means of some *douceurs* to the customhouse-officers, the people of Provence load annually several ships with it. The *Bogaz* preventing them from entering the Nile, their cargoes are conveyed on board by the boats of the country. This inconvenience is the source of endless vexation and abuses. The boat, which is loaded in the evening with rice of the first quality, is frequently not that which arrives at the ship; an inferior quality is substituted for it during the night. The Marseilles captains, aware of these rogueries, without being able to prevent them, endeavour to play off trick against trick, so that this commerce has become a general scene of knavery. But the badness of the port is still more detrimental to Damietta. The road where the vessels lie being exposed to every wind, the slightest gale obliges the captains to cut their cables and take shelter at Cyprus, or to stand off to sea. It would be easy, by cutting a canal only of half a league, to open a passage for ships into the Nile, where there is deep water. This work, which might be executed at very little expence, would render Damietta a noble harbour; but despotism, insensible to the interest of the people, is always surrounded by destruction in its progress, and wants both the will and the power to create.

The tongue of land on which Damietta is situated, straitened on one side by the river, and on the other by the western extremity of lake *Menzalé*, is only from two to six miles wide from east to west. It is intersected by innumerable rivulets in every direction, which render it the most fertile spot in Egypt. The soil there produces, *communibus annis*, 80 bushels of rice for

one. The other produce is in the same proportion. It is there that nature, lavishing profusely her pomp and riches, presents flowers, fruits, and harvests, at every season of the year. Winter never deprives it of these advantages; its beauties are never impaired by summer. Destructive heats, as well as chilling colds, are equally unknown in that happy spot. The thermometer varies only from 9 to 24 degrees above the freezing point. Damietta is indebted for this charming temperature to the immense quantity of water with which it is surrounded. The verdure is no where so fresh; the trees are no where covered with such quantities of fruit. The rivulets around the fields of rice are lined with several kinds of reeds, some of which rise to a great height. The reed *calamus* is here found in abundance, which is made use of for writing by the orientals. Its slender stalks bear long narrow leaves, which hang gracefully, and spreading branches covered with white flowers. Here also are to be seen forests of papyrus, of which the ancient Egyptians made their paper. Strabo, who calls it *Biblius*, gives an accurate description of it. It is here also that the *Lotus*, of which the Arabs have preserved the primitive name of *Nuphar*, exalts its lofty stalk above the waters. Its large calyx blows either of an azure blue or of a brilliant white, and it appears with the majesty of the king of the aquatic plants. The marshes and the canals in the interior parts of the country are filled with this superb flower, which diffuses a most agreeable odour.

There are a great many villages around Damietta, in most of which are manufactures where the most beautiful linens of the country are fabricated. The finest napkins in particular are made there, fringed with silk. You are served at table with them, but especially on ceremonial visits, when the slave presents you with one to wipe your mouth with, after you have drank your sherbet, or eat the sweetmeats, which are carried round on a silver plate to all the company. These small towns, generally surrounded with little woods, or trees promiscuously planted, form a whimsical and picturesque assemblage. By the side of the sycamore and the melancholy tamarind, one sees the elegant cassia-tree, with its clusters of yellow flowers, like those of the cytissus. The top of the date-tree, loaded with enormous bunches, rises above the grove. The cassia, with its sweet-scented flower, grows under its shade. The orange and lemon trees cover the labourer's cabin with their golden fruit. The banana-tree with its long leaves, the pomegranate with its scarlet flower, and the fig-tree with its sugary fruit, throw a vast variety into these landscapes.

DAMNII, anciently a people of Britain; situated between the Selgovæ to the south and the Caledonii to the north. Now *Clydesdale*.

DAMNONII. See DANMONII.

DAMOCLES, one of the flatterers of Dionysius the Elder of Sicily. He admired the tyrant's wealth, and pronounced him the happiest man on earth. Dionysius prevailed upon him to undertake for a while the charge of royalty, and be convinced of the happiness which a sovereign enjoyed. Damocles ascended the throne, and while he gazed upon the wealth and splendor that surrounded him, he perceived a sword hanging

Damietta
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Damocles,

Damon
||
Damps.

ing over his head by a horse hair. This so terrified him that all his imaginary felicity vanished at once, and he begged Dionysius to remove him from a situation which exposed his life to such fears and dangers.

DAMON, the name of several illustrious ancients; particularly of a Pythagorean philosopher very intimate with Pythias. When he had been condemned to death by Dionysius, he obtained from the tyrant leave to go and settle his domestic affairs, on promise of returning at a stated hour to the place of execution. Pythias pledged himself to undergo the punishment which was to be inflicted on Damon, should he not return in time, and he consequently delivered himself into the hands of the tyrant. Damon returned at the appointed moment, and Dionysius was so struck with the fidelity of those two friends, that he remitted the punishment, and intreated them to permit him to share their friendship and enjoy their confidence.

DAMPIER (William), a famous navigator, descended from a good family in Somersetshire in England, was born in 1652. Losing his father when very young, he was sent to the sea, where he soon distinguished himself, particularly in the South Sea. His voyage round the world is well known, and has gone through many editions. He appears afterward to have engaged in an expedition concerted by the merchants of Bristol to the South Sea, commanded by Captain Woods Rogers; who failed in August 1708, and returned by September 1711: but we have no further particulars of his life or death.

DAMPS, in natural history (from the Saxon word *damp*, signifying vapour or exhalation), are certain noxious exhalations issuing from some parts of the earth, and which prove almost instantly fatal to those who breathe them.

These damps are chiefly observed in mines and coal-pits: though vapours of the same kind often issue from old lavas of burning mountains; and, in those countries where volcanoes are common, will frequently enter houses, and kill people suddenly without the least warning of their approach. In mines and coal-pits they are chiefly of two kinds, called by the miners and colliers the *choke* and *fire damps*; and both go under one general name of *foul air*. The *choke damp* is very much of the nature of fixed air; and usually infests those places which have been formerly worked, but long neglected, and are known to the miners by the name of *wastes*. No place, however, can be reckoned safe from this kind of damps, except where there is a due circulation of air; and the procuring of this is the only proper means of preventing accidents from damps of all kinds. The *choke-damp* suffocates the miners suddenly, with all the appearances found in those that are suffocated by fixed air. Being heavy, it descends towards the lowest parts of the workings, and thus is dangerous to the miners, who can scarce avoid breathing it. The *fire-damp*, which seems chiefly to be composed of inflammable air, rises to the roof of the workings, as being specifically lighter than the common atmosphere; and hence, though it will suffocate as well as the other, it seldom proves so dangerous in this way as by its inflammable property, by which it often takes fire at the candles, and explodes with extreme violence.

In the Phil. Trans. N° 119. there is an account of

some explosions by damps of this kind, on which we have the following observations. 1. Those who are in the place where the vapour is fired, suddenly find themselves surrounded with flames, but hear little or no noise; though those who are in places adjacent, or above ground, hear a very great one. 2. Those who are surrounded by the inflamed vapour feel themselves scorched or burnt, but are not moved out of their places, though such as unhappily stand in the way of it are commonly killed by the violence of the shock, and often thrown with great force out at the mouth of the pit; nor are the heaviest machines found able to resist the impetuosity of the blast. 3. No smell is perceived before the fire, but a very strong one of brimstone is afterwards felt. 4. The vapour lies towards the roof, and is not perceived if the candles are held low; but when these are held higher, the damp descends like a black mist, and catches hold of the flame, lengthening it to two or three handfuls; and this appearance ceases when the candles are held nearer the ground. 5. The flame continues in the vault for several minutes after the crack. 6. Its colour is blue, something inclining to green, and very bright. 7. On the explosion of the vapour, a dark smoke like that proceeding from fired gunpowder is perceived. 8. Damps are generally observed to come about the latter end of May, and to continue during the heat of summer. They return several times during the summer season, but observe no certain rule.

Besides these kinds of damps, which are very common, we find others described in the Philosophical Transactions, concerning the nature of which we can say nothing. Indeed the account seems somewhat suspicious. They are given by Mr Jessop, from whom we have the foregoing observations concerning the fire-damp, and who had these from the miners in Derbyshire. After describing the common damp, which consists of fixed air, "They call the second sort (says he) the *pease-bloom damp*, because, as they say, it smells like pease bloom. They tell me it always comes in the summer time; and those grooves are not free which are never troubled with any other sort of damps. I never heard that it was mortal; the scent, perhaps, freeing them from the danger of a surprise: but by reason of it many good grooves lies idle at the best and most profitable time of the year, when the subterraneous waters are the lowest. They fancy it proceeds from the multitude of red-trefoil flowers, by them called *bonnyfuckles*, with which the limestone meadows in the Peake do much abound. The third is the strangest and most pestilential of any; if all be true which is said concerning it. Those who pretend to have seen it (for it is visible) describe it thus: In the highest part of the roof of those passages which branch out from the main groove, they often see a round thing hanging, about the bigness of a foot-ball, covered with a skin of the thickness and colour of a cob-web. This, they say, if it is broke by any accident, as the splinter of a stone, or the like, disperseth itself immediately, and suffocates all the company. Therefore, to prevent casualties as soon as they have espied it, they have a way, by the help of a stick and long rope, of breaking it at a distance; which done, they purify the place well with fire, before they dare enter it again. I dare not a-

Damps.

vouch

Damps.

vouch the truth of this story in all its circumstances, because the proof of it seems impossible, since they say it kills all that are likely to bear witness to the particulars: neither do I deny but such a thing may have been seen hanging on the roof, since I have heard many affirm it."—Some damps, seemingly of the same nature with those last mentioned, are noticed by the author of the Chemical Dictionary, under the word *Damps*. "Amongst the noxious mineral exhalations (says he), we may place those which are found in the mines of Sal-gem in Poland. These frequently appear in form of light flocks, threads, and spiders webs. They are remarkable for their property of suddenly catching fire at the lamps of the miners with a terrible noise and explosion. They instantly kill those whom they touch. Similar vapours are found in some mines of fossil coal."

With regard to the formation of damps we have as yet no certain theory; nor, though the experiments of aerologists are abundantly able to show the composition and manner of forming these noxious airs artificially, have they yet thrown much light on the method by which nature prepares them on a large scale. There are two general ways in which we may suppose this to be done; one by the stagnation of atmospherical air in old waste places of mines and coal-pits, and its conversion into these mephitic exhalations; the other by their original formation from the phlogistic or other materials found in the earth, without any interference of the atmosphere. In favour of the former opinion it may be urged, that old wastes are never free from damps, especially those of the kind resembling fixed air; nor are they always deficient in the inflammable kind. The same is also true of old wells, or even cellars, and in short in every place where the air stagnates for any considerable time. But, on the other hand, we have many instances of fixed air coming out of the earth, and that in vast quantities, where no considerable stagnation of the atmosphere could be suspected; as for instance, in the grotto del Cani in Italy, where a continual stream of it has issued from time immemorial. The same seems to be the case with the tops of some high mountains, particularly Mont Blanc, the highest in Europe; on the top of which M. Saussure found the atmosphere so much impregnated with fixed air, that lime-water exposed to it very quickly gathered a crust on its surface. Sir William Hamilton, in his account of the eruptions of Vesuvius, informs us, that the inhabitants in the neighbourhood of that mountain are infested with a kind of pestilential vapours named by them *mosfetes*, which issue from the old lavas thrown out by the volcano. These are of the nature of the damps in our mines or coal-pits, and issue forth in such quantity as either to infect the atmosphere for a very considerable way round, or to do mischief by being carried from place to place by the atmospherical currents, which are not strong enough to dissipate them for some time. From some late accounts the *samiel* (or scorching winds, as they have been represented) in the eastern countries, seem to be no other than streams of fixed air of considerable extent, which exert their usual and fatal effects on those who breathe them. A strong argument in favour of this opinion is, that these winds

cannot cross a river, it being the nature of water to absorb fixed air, and thus destroy them.

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Hence it is rendered probable that these mephitic vapours are often to be met with in the open atmosphere, and consequently cannot always be the effect of stagnation; nor indeed does it at all appear that mere stagnation can affect the quality of the atmosphere either one way or other. This fluid cannot have its properties altered but by something immersed in it upon which it can act, and by means of which action its component parts may be changed or separated. While this process is going on, there is generally, if not always, an *absorption* of air, accompanied indeed frequently with an emission of some aerial fluid equal in quantity to that which is absorbed. Mr Scheele, in his Essay on Fire, has shown by a number of experiments the effect of exposing certain substances to the action of air, both on the substances themselves and on the aerial fluid. The result of all these is no other than what we might expect from a very slow combustion, and which perhaps may on inquiry be found to be the only way by which air can be decomposed. If the substance exposed to the air was capable of absorbing that part of the fluid which had undergone a change, there was always an evident diminution, but not otherwise. Thus, on inclosing some caustic fixed alkali in a phial of atmospherical air, a considerable diminution took place; and the alkali, by becoming saturated with fixed air, showed that a decomposition had taken place, and that the dephlogisticated part of the air had separated from the other, attached itself to the fixed alkali, and become fixed air by uniting with a certain proportion of phlogistic matter. Hence we may conceive, that in any place where the air was confined over a vast quantity of caustic alkaline salt, it would soon become unfit for the purposes of animal life, and we might say that a *damp* would be formed. But this would be a damp of a very different kind from that usually met with in mines; for here the dephlogisticated part of the atmosphere being converted into fixed air, and absorbed by the salt, only the poisonous mephitic, or as it is commonly called *phlogisticated*, air would remain, so that no fixed air could ever be separated from it.

Let us now suppose, that instead of the alkaline salt a quantity of burning charcoal is confined in a place where there is not a proper circulation of air, and we will soon see that a damp of the very same kind with that called by miners the *choke-damp* will be formed. But this, according to the late discoveries, takes place by reason of the dissipation of the charcoal by heat, and its union with the dephlogisticated part of the atmosphere, which always constitutes fixed air*. In this case, however, the damp must be but of short continuance, and will soon be dissipated after the charcoal is extinguished; but if, instead of the charcoal, we substitute a large quantity of fermenting liquor, from whence the fixed air is naturally emitted, a damp will be formed much more difficult to be dissipated than the former, because it renews itself in a very short time; and, unless there is a very constant circulation of air, it will be dangerous to enter the place where it is.

* See *Aerology* and *Fixed Air*.

From the last example we may form an idea of the manner

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manner in which these damps, consisting chiefly of fixed air, are formed. We know not indeed thoroughly the nature of fermentation; but we are assured, that it is always accompanied by an internal heat; which, in some cases, is raised to the utmost height, insomuch that large quantities of moist vegetable substances, packed together, will sometimes burst out into flame. It is not, however, at all times necessary for the extrication of fixed air, that the heat should come to this extremity. The example of fermenting liquors shows, that in some cases a very moderate heat is sufficient for the purpose. Now, though the comparison may seem somewhat inadequate between the solid substance of the earth and a fermenting liquid, yet we know that a gentle heat constantly takes place in the bowels of the earth; and that almost all terrestrial substances will emit fixed air on being exposed to heat. It is not at all improbable, therefore, that, on the large scale of nature, the quantity of materials may compensate for the weakness of the heat, and thus occasion a constant emission of fixed air; which, though slow in comparison of what is effected in our experiments by a violent artificial heat, may yet accumulate in the narrow spaces of mines in such a manner as to be very troublesome. In volcanic countries, where the heat of the earth is much greater, the emission of fixed air is in proportion: and thus we may account for that continual stream of it, which issues from the grotto del Cani, and perhaps other places. The *mosfetes*, which are said to proceed from old lavas, can only be accounted for by supposing the heat, which originally took place in them, to be in some measure renewed; or that they have been again, by some means or other, disposed to take fire as formerly; but this we offer merely as a conjecture; there not being as yet sufficient data to determine any thing positively upon the subject.

It may be objected to the hypothesis just now laid down, that, if there is a continual disposition in the earth to produce fixed air, the whole surface of it must pour out such a quantity as would destroy every living creature upon it. This indeed might be granted, were the surface of the earth quite bare, and destitute of vegetation: but we know that fixed air is composed of the dephlogisticated kind and phlogiston; and that these two ingredients, after being once joined, may be separated from each other, and reassume their proper characters. There is no absurdity, therefore, in supposing that the fixed air may be continually decomposed by the vegetables which grow all over the surface of the earth; and the atmosphere not only thus preserved from any taint from it, but supplied with a quantity of pure dephlogisticated air, which it is certain that vegetables do emit. It is also certain, that wherever the atmosphere is suffered to be in contact with the bare surface of the ground for some time, a considerable quantity of fixed air will be produced, unless there is a constant circulation of atmospherical air to carry off the former before it has time to produce any sensible effect. Hence we may account for the damps in wells, cellars, and even in the confined places of old castles and ruinous buildings, where the air is not in contact with the surface of the ground of itself, but with mere heaps of rubbish and old walls.

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With regard to what is called the *fire damp*, the case seems to be more plain. In the Phil. Trans. n^o. 136, we have the following account of one of this kind, which seemed evidently to issue from the earth: "This work is upon a coal of five yards in thickness, and hath been begun upon about six or eight and thirty years ago. When it was first found, it was extremely full of water, so that it could not be wrought down to the bottom of the coal; but a *witchet*, or cave, was driven out of the middle of it, upon a level, for gaining room to work, and drawing down the spring of water that lies in the coal to the eye of the pit. In driving of which *witchet*, after they had gone a considerable way under ground, and were scantied of wind, the fire-damps began by little and little to breed, and to appear in crevices and flits of the coal, where water had lain before the opening of the coal, with a small bluish flame, working and moving continually; but not out of its first seat, unless the workmen held their candles to it; and then being weak, the blaze of the candle would drive it out with a sudden fizz away to another crevice, where it would soon after appear blazing and moving as formerly. This was the first knowledge of it in this work, which the workmen made but a sport of, and so partly neglected, till it had gotten some strength; and then upon a morning, the first collier that went down, going forwards in the *witchet* with his candle in his hand, the damp presently darted out so violently at his candle, that it struck the man clear down, singed all his hair and clothes, and disabled him from working for a while after. Some other small warnings it gave them, insomuch that they resolved to employ a man on purpose that was more resolute than the rest, to go down a while before them every morning, to chase it from place to place, and so to weaken it. His usual manner was to put on the worst rags he had, and to wet them all in water, and when he came within the danger of it, then he fell down grovelling upon his belly, and so went forward, holding in one hand a long wand or pole, at the head whereof he tied candles burning, and reached them by degrees towards it; then the damp would fly at them, and, if it missed of putting them out, would quench itself with a blast, and leave an ill-scented smoke behind. Thus they dealt with it till they had wrought the coal down to the bottom, and the water following, and not remaining as before in the body of it, among sulphureous and brassy metal that is in some veins of the coal, the fire-damp was not seen nor heard of till the latter end of the year 1675, which happened as followeth:

"After long working of this coal, it was found upon the rising grounds that there lay another roach of coal at the depth of 14 yards under it, which proved to be $3\frac{1}{2}$ yards thick, and something more sulphureous. This encouraged us to sink in one of the pits we had formerly used on the five-yards coal. As we sunk the lower part of it, we had many appearances of the fire-damp in the watery crevices of the rocks we sunk through, flashing and darting from side to side of the pit, and showing rainbow-like colours upon the surface of the water in the bottom; but upon drawing up of the water with buckets, which stirred the air in the pit, it would leave burning, till the colliers at work, with their breath and sweat, and the smoke of their candles, thickened

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thickened the air in the pit, and then it would appear again; they lighted their candles at it sometimes when they went out; and so in this pit it did no farther harm."

In another pit, however, it soon appeared, and at last produced a most terrible explosion. This was occasioned by one of the workmen going imprudently down with a lighted candle, after a cessation of work for some days, and the force exerted by it seemed equal to that of gun-powder.

The formation of inflammable air in mines cannot be attributed to any vitiation of the atmosphere; for there is no natural process with which we are acquainted, by which such a change could be accomplished. In one instance, however, we have an example of a fire-damp being produced, not only without any considerable stagnation of atmospherical air, but where there is the best circulation imaginable. This is in large bellows used in metallurgic works, which are sometimes burst by an explosion of inflammable matter proceeding from the rancid matters with which the leather is greased. Dr Priestley has shown, that inflammable air is composed of pure elementary fire, charcoal or phlogiston, and a little water; and that this composition may take place even *in vacuo*. All these materials are to be met with in the bowels of the earth. Coal, a bituminous substance, is abundantly able to supply the phlogiston; the natural moisture of the earth affords water, and the heat, however gentle, which constantly exists in the bowels of the earth, may be sufficient to produce a quantity of inflammable air, which gradually accumulating in those places where there is not a constant stream of atmospherical air to carry it off, will soon produce the dreadful effects already mentioned.

A much more important consideration than the formation of damps, however, is the proper method of avoiding their pernicious effects. The inflammability of one kind affords an easy method of preventing it from accumulating, viz. by setting fire to it. This may be done with safety, unless it has been suffered to go too far before the experiment is made: for the inflammable air being much lighter than any other kind, will naturally rise to the top; so that a man, lying flat on the ground to avoid the force of the explosion, and holding up a lighted candle fixed upon a pole, may at once free the mine from such a troublesome guest. But where it has been allowed to accumulate in too great quantity, so that this method cannot be used, or in the other kind, which is not inflammable, the method commonly practised is to produce a constant circulation of air as much as possible through all parts of the mine. To procure this, they make a perpendicular opening, which they call a *shank* or *shaft*, so that the mine may have two or more openings: and thus by reason of the difference of temperature between the open atmosphere and that in the mine, there is a continual draught of air through them both. This current will always be stronger in proportion to the difference between the external atmosphere and that of the mine; and likewise in proportion to the difference between the depth of the two shafts. But as the temperature of the atmosphere is variable, it happens, at certain seasons of the year, that there is not a sufficient difference between that

of the atmosphere and in the mine to produce the necessary circulation. This happens principally in the spring and autumn; at which seasons it is necessary to light fires in the shafts, which are always efficacious for the purpose desired.

Among the other uses to which dephlogisticated air might be applied, Mr Cavallo reckons that of securing people from the dangerous effects of damps in mines, and other subterraneous places. "If a large bladder," says he, "into which a solution of lime in water is introduced, be filled with dephlogisticated air, and a small wooden or glass pipe be adapted to its neck, a man may hold that pipe in his mouth, and may breathe the dephlogisticated air; and thus equipped, he may enter into these subterranean places, amidst the various elastic fluids contained in them. A large bladder of dephlogisticated air will serve for above a quarter of an hour, which is a length of time sufficient for various purposes; besides, if longer time is required to be spent in these places, a person may have two or more bladders of dephlogisticated air along with him, and may shift as soon as the air of one is contaminated. Without the necessity of any more complicated apparatus, the bladders full of dephlogisticated air may be kept stopped by putting corks into the glass or wooden pipes that are tied to their necks. This air might also be used for diving-bells."

DAMSEL, from the French *damoiselle* or *damoiseau*, an appellation anciently given to all young people of either sex, that were of noble or genteel extraction, as the sons and daughters of princes, knights, and barons: thus we read of Damsel Pepin, Damsel Louis le Gros, Damsel Richard Prince of Wales.

From the sons of kings this appellation first passed to those of great lords and barons, and at length to those of gentlemen who were not yet knights.

At present damsel is applied to all maids or girls not married, provided they be not of the vulgar.

DAN, or JOR-DAN, which last literally denotes "the river Dan;" so named from the people where it has its source, which is a lake called *Phiala*, from its round figure, to the north of its apparent rising from the mountain Panium or Paneum, as was discovered by Philip, Tetrarch of Trachonites; for on throwing light bodies into the Phiala, he found them to emerge again at Paneum (Josephus). From Paneum it runs in a direct course to a lake called *Samachonites*, as far as which it is called *Jordan the Less*; and thence to the lake Genesareth, or of Tiberias, where it comes increased by the lake Samachonites and its springs, and is called the *Greater Jordan*; continuing its direct course southwards, till it falls into the Asphaltites.

DAN (anc. geog.), a town to the west of the source of the Jordan; formerly called *Lais* (Joshua, Judges, Josephus). This was the north, as Beerseba was the south, boundary of the Israelites; as appears from the common expression in Scripture, from *Dan* to *Beerseba*. At Dan Jeroboam erected one of the golden calves (1 Kings xii.).

DAN, the tribe, extended itself westward of Judah, and was terminated by Azotas and Dora on the Mediterranean (Josephus).

DANAE, in antiquity, a coin somewhat more than an obolus, used to be put into the mouths of the dead, to pay their passage over the river Acheron.

DANAE,

Damsel
||
Danae.

Danae
||
Danaus.

DANAE, in fabulous history, was the daughter of Acrisius king of Argos, by Eurydice. She was confined in a brazen tower by her father, who had been told by an oracle that his daughter's son would put him to death. His endeavours to prevent Danae from becoming a mother proved fruitless; and Jupiter, who was enamoured of her, introduced himself to her bed by changing himself into a golden shower. From his embraces Danae had a son, with whom she was exposed on the sea by her father. The wind drove the bark which carried her to the coasts of the island of Seriphus; where she was saved by some fishermen, and carried to Polydectes king of the place, whose brother, called *Dictys*, educated the child called *Perseus*, and tenderly treated the mother. Polydectes fell in love with her; but as he was afraid of her son, he sent him to conquer the Gorgons, pretending that he wished Medusa's head to adorn the nuptials which he was going to celebrate with Hippodamia the daughter of Ctenomachus. When Perseus had victoriously finished his expedition, he retired to Argos with Danae to the house of Acrisius, whom he inadvertently killed. Some suppose that it was Proteus the brother of Acrisius who introduced himself to Danae in the brazen tower; and instead of a golden shower, it was maintained that the keepers of Danae were bribed by the gold of her seducer. Virgil mentions that Danae came to Italy with some fugitives of Argos, and that she founded a city called *Ardea*.

DANAIDES (fab. hist.), the fifty daughters of Danaus king of Argos. When their uncle Ægyptus came from Egypt with his fifty sons, they were promised in marriage to their cousins; and before the celebration of their nuptials, Danaus, who had been informed by an oracle that he was to be killed by the hands of one of his sons-in-law, made his daughters solemnly promise that they would destroy their husbands. They were provided with daggers by their father; and all except Hypermnestra stained their hands with the blood of their cousins the first night of their nuptials; and as a pledge of their obedience to their father's injunctions, they presented him each with the head of the murdered sons of Ægyptus. Hypermnestra was summoned to appear before her father, and answer for her disobedience in suffering her husband Lynceus to escape; but the unanimous voice of the people declared her innocent, and she dedicated a temple to the goddess of Persuasion. The sisters were purified of this murder by Mercury and Minerva by order of Jupiter; but according to the more received opinion, they were condemned to severe punishment in hell, and were compelled to fill with water a vessel full of holes, so that the water ran out as soon as poured into it; and therefore their labour was infinite, and their punishment eternal. The heads of the sons of Ægyptus were buried at Argos; but their bodies were left at Lerna, where the murder had been committed.

DANAUS (fab. hist.), a son of Belus and Anchinoë, who after his father's death reigned conjointly with his brother Ægyptus on the throne of Egypt. Some time after, a difference arose between the brothers, and Danaus set sail with his fifty daughters in quest of a settlement. He visited Rhodes, where he consecrated a statue to Minerva, and arrived safe on the coast of Peloponnesus, where he was hospitably received by Gela-

nor king of Argos. Gelanor had lately ascended the throne, and the first years of his reign were marked with dissensions with his subjects. Danaus took advantage of Gelanor's unpopularity, and obliged him to leave the crown. In Gelanor, the race of the Inachidae was extinguished, and the Belides began to reign at Argos in Danaus. Some authors say, that Gelanor voluntarily resigned the crown to Danaus, on account of the wrath of Neptune, who had dried up all the waters of Argolus, to punish the impiety of Inachus. The success of Danaus invited the fifty sons of Ægyptus to embark for Greece. They were kindly received by their uncle; who either apprehensive of their number, or terrified by an oracle which threatened his ruin by one of his sons-in-law, caused his daughters, to whom they were promised in marriage, to murder them the first night of their nuptials. His order was executed. Hypermnestra alone spared the life of Lynceus: (See DANAIDES). Danaus at first persecuted Lynceus with unremitted fury; but he was afterwards reconciled to him, and he acknowledged him for his son-in-law and successor after a reign of 50 years. He began his reign about 1586 years before the Christian era; and after death he was honoured with a splendid monument in the town of Argos, which still existed in the age of Pausanias. According to Æschylus, Danaus left Egypt, not to be present at the marriage of his daughters with the sons of his brother, a connection which he deemed unlawful and impious.

DANCE, or DANCING, as at present practised, may be defined, "an agreeable motion of the body, adjusted by art to the measures or tune of instruments, or of the voice."—But, according to what some reckon more agreeable to the true genius of the art, dancing is "the art of expressing the sentiments of the mind, or the passions, by measured steps or bounds that are made in cadence by regulated motions of the body, and by graceful gestures; all performed to the sound of musical instruments or of the voice."

There is no account of the origin of the practice of dancing among mankind. It is found to exist among all nations whatever, even the most rude and barbarous; and, indeed, however much the assistance of art may be necessary to make any one perfect in the practice, the foundation must certainly lie in the mechanism of the human body itself.

The connection that there is between certain sounds and those motions of the human body called *dancing*, hath seldom or never been inquired into by philosophers, though it is certainly a very curious speculation. The power of certain sounds not only over the human species, but even over the inanimate creation, is indeed very surprising. It is well known, that the most solid walls, nay the ground itself, will be found to shake at some particular notes in music. This strongly indicates the presence of some universally diffused and exceedingly elastic fluid, which is thrown into vibrations by the concussions of the atmosphere upon it, produced by the motion of the sounding body.—If these concussions are so strong as to make the large quantity of elastic fluid vibrate that is dispersed through a stone wall or a considerable portion of earth, it is no wonder they should have the same effect upon that invisible and exceedingly subtle matter that pervades and seems to reside in our nerves.

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Some there are that have their nerves constructed in such a manner, that they cannot be affected by the sounds which affect others, and some scarce with any; while others have such an irritability of the nerves in this case, that they cannot, without the greatest difficulty, sit or stand still when they hear a favourite piece of music played.

It is conjectured by very eminent philosophers, that all the sensations and passions to which we are subject, do immediately depend upon the vibrations excited in the nervous fluid above mentioned. Hence, musical sounds have the greatest power over those people who are of a delicate sensible frame, and who have strong passions. If it be true, therefore, that every passion in the human nature immediately depends upon a certain affection of the nervous system, or a certain motion or vibration in the nervous fluid, we shall immediately see the origin of the different dances among different nations. One kind of vibration, for instance, raises the passions of anger, pride, &c. which are indispensably necessary in warlike nations. The sounds, for such there are, capable of exciting a similar vibration, would naturally constitute the martial music among such nations, and dances conformable to it would be instituted. This appears to be the case particularly among barbarous nations, as we shall presently have occasion to remark. Other vibrations of the nervous fluid produce the passions of joy, love, &c.; and sounds capable of exciting these particular vibrations will immediately be formed into music for dancers of another kind.

As barbarous people are observed to have the strongest passions, so they are also observed to be the most easily affected by sounds, and the most addicted to dancing. Sounds to us the most disagreeable, the drumming with sticks upon an empty cask, or the noise made by blowing into reeds incapable of yielding one musical note tolerable to us, is agreeable music to them. Much more are they affected by the sound of instruments which have any thing agreeable in them. Mr Gallini informs us, that "The spirit of dancing prevails almost beyond imagination among both men and women in most parts of Africa. It is even more than instinct, it is a rage, in some countries of that part of the globe.—Upon the gold coast especially, the inhabitants are so passionately fond of it, that in the midst of their hardest labour, if they hear a person sing, or any musical instrument played, they cannot refrain from dancing.—There are even well attested stories of some negroes flinging themselves at the feet of an European playing on a fiddle, intreating him to desist, unless he had a mind to tire them to death; it being impossible for them to cease dancing while he continued playing."

—The same thing is found to take place in America, though, as the inhabitants of that continent are found to be of a more fierce and barbarous nature than the African nations, their dances are still more uncouth and barbarous than those of the negroes. "In Mexico, says Gallini, they have also their dances and music, but in the most uncouth and barbarous style. For their symphony they have wooden drums, something in form of a kettle-drum, with a kind of pipe or flagellet, made of a hollow cane or reed, but very grating to an European ear. It is observed they love every thing that makes a noise, how disagreeable soever the

sound is. They will also hum over something like a tune when they dance 30 or 40 in a circle, stretching out their hands, and laying them on each others shoulders. They stamp and jump, and use the most antic gestures for several hours, till they are heartily weary. And one or two of the company sometimes step out of the rings to make sport for the rest, by showing feats of activity, throwing their lances up into the air, catching them again, bending backwards, and springing forwards with great agility."

The origin of dancing among the Greeks was most certainly the same as among all other nations; but as they proceeded a certain length in civilization, their dances were of consequence more regular and agreeable than those of the more barbarous nations. They reduced dancing into a kind of regular system; and had dances proper for exciting, by means of the sympathy above mentioned, any passion whatever in the minds of the beholders. In this way they are said to have proceeded very great lengths, to us absolutely incredible. At Athens, it is said, that the dance of the Eumenides or Furies on the theatre had so expressive a character as to strike the spectators with irresistible terror: men grown old in the profession of arms trembled; the multitude ran out; women with child miscarried; people imagined they saw in earnest those terrible deities commissioned with the vengeance of heaven to pursue and punish crimes upon earth.

The Greeks had martial dances, which they reckoned to be very useful for keeping up the warlike spirit of their youth; but the Romans, though equally warlike with the Greeks, never had any thing of the kind.—This probably may be owing to the want of that romantic turn for which the Greeks were so remarkable. The Romans had no heroes among them, such as Hercules, Achilles, or Ajax; nor does the whole Roman history furnish an example of a General that made war after the manner of Alexander the Great. Though their soldiers were as valiant as ever the Greeks could pretend to be, the object with them was the honour of the republic, and not their own personal praise. Hence there was less fury, and much more cool deliberate valour, exercised by the Romans, than any other nation whatever. The passions of pride, resentment, obstinacy, &c. were excited in them, not by the mechanical means of music and dancing, but by being taught that it was their chief honour to fight for the republic.—It does not however appear, that the Romans were at all less capable of being affected in this mechanical manner than the Greeks. When dancing was once introduced, it had the very same effects at Rome as at Athens.

Among the Jews, dancing seems to have made a part of the religious worship on some occasions, as we learn from some passages in the Psalms, though we do not find either that or singing positively enjoined as a divine precept.—In the Christian churches mentioned in the New Testament, there is no account of dancing being introduced as an act of worship, though it is certain that it was used as such in after ages. Mr Gallini tells us, that "at Limoges, not long ago, the people used to dance the round in the choir of the church which is under the invocation of their patron saint; and at the end of each psalm, instead of the *Gloria Patri*, they sung as follows: *St Marcel, pray for us, and we will dance in honour of you.*"—Though dan-

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dancing would now be looked upon as the highest degree of profanation in a religious assembly, yet it is certain, that dancing, considered as an expression of joy, is no more a profanation than singing, or than simple speaking; nor can it be thought in the least more absurd, that a Christian should dance for joy that Jesus Christ is risen from the dead, than that David danced before the ark when it was returned to him after a long absence.

Plato reduces the dances of the ancients to three classes. 1. The military dances, which tended to make the body robust, active, and well-disposed for all the exercises of war. 2. The domestic dances, which had for their object an agreeable and innocent relaxation and amusement. 3. The mediatorial dances, which were in use in expiations and sacrifices.—Of military dances there were two sorts: the *gymnopedique* dance, or the dance of children; and the *enoplian*, or armed dance. The Spartans had invented the first for an early excitation of the courage of their children, and to lead them on insensibly to the exercise of the armed dance. This children's dance used to be executed in the public place. It was composed of two choirs; the one of grown men, the other of children; whence, being chiefly designed for the latter, it took its name. They were both of them in a state of nudity. The choir of the children regulated their motions by those of the men, and all danced at the same time, singing the poems of Thales, Alcman, and Dionysodotus.—The *enoplian* or *pyrrhic* was danced by young men armed cap-a-pee, who executed, to the sound of the flute, all the proper movements either for attack or for defence. It was composed of four parts.—The first, the *podism* or footing; which consisted in a quick shifting motion of the feet, such as was necessary for overtaking a flying enemy, or for getting away from him when an overmatch.—The second part was the *xiphism*: this was a kind of mock-fight, in which the dancers imitated all the motions of combatants; aiming a stroke, darting a javelin, or dexterously dodging, parrying, or avoiding a blow or thrust. The third part, called the *komos*, consisted in very high leaps or vaultings, which the dancers frequently repeated, for the better using themselves occasionally to leap over a ditch, or spring over a wall. The *tetrakomos* was the fourth and last part: this was a square figure, executed by slow and majestic movements; but it is uncertain whether this was every where executed in the same manner.

Of all the Greeks, the Spartans were those who most cultivated the Pyrrhic dance. Athenæus relates, that they had a law by which they were obliged to exercise their children at it from the age of five years. This warlike people constantly retained the custom of accompanying their dances with hymns and songs. The following was sung for the dance called *trichoria*, said to be instituted by Lycurgus, and which had its name from its being composed of three choirs, one of children, another of young men, and the third of old. The old men opened the dance, saying, "In time past we were valiant." The young men answered, "We are so at present." "We shall be still more so when our time comes," replied the chorus of children. The Spartans never danced but with real arms. In process of time, however, other nations came to use only wea-

pons of wood on such occasions. Nay, it was only so late as the days of Athenæus, who lived in the second century, that the dancers of the Pyrrhic, instead of arms, carried only flasks, ivy-bound wands (*thyrsus*) or reeds. But, even in Aristotle's days, they had begun to use thyrsuses instead of pikes, and lighted torches in lieu of javelins and swords. With these torches they executed a dance called the *conflagration of the world*.

Of the dances for amusement and recreation, some were but simply gambols, or sportive exercises, which had no character of imitation, and of which the greater part exist to this day. The others were more complex, more agreeable, figured, and were always accompanied with singing. Among the first or simple ones was the *ascoliasmus*; which consisted in jumping, with one foot only, on bladders filled with air or wine, and rubbed on the outside with oil. The *dypodium* was jumped with both feet close. The *kybessesis* was what is called in this country the *somerset*.—Of the second kind was that called the *wine-press*, of which there is a description in Longinus, and the Ionian dances: these last, in the original of their institution, had nothing but what was decent and modest; but, in time, their movements came to be so depraved, as to be employed in expressing nothing but voluptuousness, and even the grossest obscenity.

Among the ancients there were no festivals nor religious assemblies but what were accompanied with songs and dances. It was not held possible to celebrate any mystery, or to be initiated, without the intervention of these two arts. In short, they were looked upon to be so essential in these kinds of ceremonies, that to express the crime of such as were guilty of revealing the sacred mysteries, they employed the word *kheistsia*, "to be out of the dance." The most ancient of these religious dances is the *Bacchic*; which was not only consecrated to Bacchus, but to all the deities whose festival was celebrated with a kind of enthusiasm. The most grave and majestic was the *hyporchematic*: it was executed to the lyre, and accompanied with the voice. At his return from Crete, Theseus instituted a dance at which he himself assisted at the head of a numerous and splendid band of youths, round the altar of Apollo. The dance was composed of three parts; the *strophe*, the *antistrophe*, and the *stationary*. In the *strophe*, the movements were from the right to the left; in the *antistrophe*, from the left to the right. In the *stationary*, they danced before the altar; so that the *stationary* did not mean an absolute pause or rest, but only a more slow or grave movement. Plutarch is persuaded, that in this dance there is a profound mystery. He thinks, that by the *strophe* is indicated the motion of the world from east to west; by the *antistrophe*, the motion of the planets from the west to the east; and by the *stationary*, the stability of the earth. To this dance Theseus gave the name of *geranos*, or "the crane;" because the figures which characterised it bore a resemblance to those described by cranes in their flight.

With regard to the modern practice of dancing as an art, there are few directions that can be of much service. The following is extracted from Mr Gallini's description of the several steps or movements.

"The dancing (says he) is generally on a theatre, or in a saloon or room. At the theatre there are four parts to be considered. 1. The nearest front to the spectators,

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spectators: 2. and 3. The two sides or wings. 4. The furthest front from the spectators.

" In a saloon or room, the place in which are the spectators decides the appellation respectively to them of right and left. The dancer should place himself in as advantageous a point of view to them as possible.

" In the dance itself, there are to be distinguished, the attitude of the body, the figure, the positions, the bends, the risings or leaps, the steps, the cabriole, the fallings, the slides, the turns of the body, the cadences.

" The *attitude* of the body requires the presenting one's self in the most graceful manner to the company.

" The *figure* is to follow the track prescribed to the steps in the dance.

" The *position* is that of the varied attitudes, which must be at once striking and easy, as also of the different exertions of the legs and feet in dancing.

" The *bends* are inflexions of the knees, of the body, of the head, or the arms.

" The *risings* are the contrast to the bends, the extension of the knee. One of these two motions necessarily precedes the other.

" The *step* is the motion by the foot or feet from one place to another.

" The *leap* is executed by springing up into the air; it begins with a bend, and proceeds with a quick extension of the legs, so that both feet quit the ground.

" The *cabriole* is the crossing, or cutting of capers, during the leap, before the return of the feet to the ground.

" The *falling* is the return of the feet to the ground, by the natural gravitation of the body.

" The *slide* is the action of moving the foot along the ground without quitting it.

" The *turn* is the motion of the body towards either side, or quite round.

" The *cadence* is the knowledge of the different measures, and of the times of movement the most marked in the music.

" The *track* is the line marked by the dance: it may be either straight or curve, and is susceptible of all the inflections correspondent to the various designs of the composer. There are the right, the diametral line, the circular line, and the oblique line. The *right* line is that which goes lengthwise, reckoning from one end of the room towards the other. The *diametral* line is across the room, from one side to the other. The *circular* line is waving, or undulatory, from one place to another. The *oblique* line proceeds obliquely from one quarter of the room towards another.—Each of these lines may directly or separately form the dancer's track, diversified with steps and positions.

" The *regular* figure is when two or more dancers move in contrary directions; that is to say, that when one moves towards the right, the other moves to the left. The *irregular* line is when the couples figuring together are both on the same side.

" Commonly the man gives the right hand to the lady in the beginning or ending of the dance; as we see in the *minuet*, *louvre*, &c.

" When a great number of dancers figure together, they are to execute the figure agreeably to the composition of the dance, with special attention to keep an eye constantly on the partner. When, in any given dance, the dancers have danced for some time in the

same place, the *track* is only to be considered as the conductor of the *steps*, but not of the *figure*; but when the dance continues, without being confined to the same place, then the *track* must be considered as the conductor both of the steps and of the figure.

" Now, to observe the figure, the dancer must have placed himself at the beginning of the track upon which he is to dance, and comprehend the figure before he himself begins it. He is to remark and conceive whether the figure is right, diametral, circular, or oblique; if it is progressive or retrogressive, or towards the right or left. He should have the air played or sung to him, to understand the movement.—Where the tracks cross one another, the steps of each of the couples must leave a sufficient distance between them not to confuse the figure.

" There are commonly reckoned ten kinds of positions, which are divided into *true* and *false*, five each.—There are three principal parts of the foot to be observed; the toes, the heel, and the ankle.

" The *true* positions are when the two feet are in a certain uniform regularity, the toes turned equally outwards.—The *false* are divided into regular and irregular. They differ from the true, in that the toes are either both turned inwards; or if the toes of one foot are turned outwards, the others are turned inwards.

" In the first of the true positions, the heels of the two feet are close together, so that they touch; the toes being turned out. In the second, the two feet are open in the same line, so that the distance between the two heels is precisely the length of one foot. In the third, the heel of one foot is brought to the ankle of the other, or seems to lock in with it. In the fourth, the two feet are the one before the other a foot's length distance between the two heels, which are on the same line. In the fifth, the two feet are across, the one before the other; so that the heel of one foot is directly opposite to the toes of the other.

" In the first of the false positions, the toes of both feet are turned inwards, so that they touch, the heels being open. The second is, when the feet are asunder at a foot's distance between the toes of each, which are turned inward, the heels being on a line. The third is, when the toes of one foot are turned outwards, the other inwards, so that the two feet form a parallel. The fourth is, when the toes of the two feet are turned inwards; but the toes of one foot are brought nearer the ankle of the other. The fifth is, when the toes of the two feet are turned inwards, but the heel of one foot is opposite to the toes of the other.

" There are mixed positions, composed of the true and false in combination; which admit of such infinite variety, and are in their nature so unsusceptible of description by words, that it is only the sight of the performance that can give any tolerable idea of them.

" Of the bends of the knee there are two kinds; the one *simple*, the other *forced*. The simple bend is an inflexion of the knees without moving the heel, and is executed with the foot flat on the ground. The forced bend is made on the toes with more force and lower.

" Much is to be observed on the head of *steps*. First, not to make any movement before having put the body in an upright posture, firm on the haunches.

" Begin with the inflexion of the knee and thigh; advance one leg foremost; with the whole foot on the ground,

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Dance. ground, laying the stress of the body on the advanced leg.

"There are some who begin the step by the point of the toes; but that has an air of theatrical affectation. Nothing can be more noble than a graceful ease and dignity of step. The quantity of steps used in dancing are almost innumerable: they are nevertheless reducible under five denominations, which may serve well enough to give a general idea of the different movements that may be made by the leg, viz. the direct step, the open step, the circular step, the twisted step, and the cut step.

"The *direct* step is when the foot goes upon a right line, either forwards or backwards.

"The *open* step is when the legs open. Of this step there are three kinds: one when they open outwards; another, when, describing a kind of circle, they form an in-knee'd figure; a third, when they open sideways; this is a sort of right step, because the figure is in a right line.

"The *round* step, is when the foot, in its motion, makes a circular figure, either inwards or outwards.

"The *twisted* step or *pas tortille*, is when the foot in its motion turns in and out. There are three kinds of this step; one forwards, another backwards, the third sidelong.

"The *cut* step is when one leg or foot comes to strike against the other. There are also three sorts of this step; backwards, forwards, and sidelong.

"The steps may be accompanied with bendings, risings, leaps, cabrioles, fallings, slidings, the foot in the air, the tip-toe, the rest on the heel, quarter-turns, half-turns, three-quarter turns, and whole turns.

"There may be practised three kinds of bends, or sinkings, in the steps; viz. bending before the step proceeds, in the act of stepping, and at the last of the steps.

"The beginning or initial sink-pace is at the first setting off, on advancing the leg.

"The bend in the act of stepping continues the march or walk.

"The final sink-pace closes the march.

"The rising is just the reverse of the bend, or sink-pace, which shall have preceded it.

"Some great masters in the art of dancing, having observed that music, which is inseparable from it, was capable of being preserved and conveyed by the musical characters, imagined by analogy, that the like advantage could be procured to the composition of dancers. Upon this plan they attempt what is called the *chorography*, an art which they suppose was either utterly unknown to the ancients, or not transmitted to us from them.

"It may indeed be easily allowed, that the track or figure of a dance may be determined by written or engraved lines; but those lines will necessarily appear so perplexing, so intricate, so difficult, if not impossible to seize in their various relations, that they are only fit to disgust and discourage, without the possibility of their conveying a satisfactory or retainable instruction. —Whence it is, that the article *Chorography* in the French *Encyclopedie* is universally exploded as unintelligible and useless; though nothing more than an ele-

mentary indication of the art; and an explanation, such as it is, of some of the technical terms of it."

Stage-DANCES. The Greeks were the first who united the dance to their tragedies and comedies; not indeed as making part of those spectacles, but merely as an accessory.

The Romans, as usual, copied after the Greeks; but in the reign of Augustus they left their instructors far behind them. Two very extraordinary men made their appearance at that time: they invented a new species of entertainment, and carried it to an astonishing degree of perfection. Nothing was then talked of but the wonderful talents and amazing performances of Pylades and Bathylus, who were the first to introduce among the Romans what the French call the *ballet d'action*, wherein the performer is both actor and dancer.

Pylades undertook the hard task of representing, with the assistance of the dance alone, strong and pathetic situations. He succeeded perhaps beyond his own expectation, and may be called the father of that style of dancing which is known to us by the name of *grave* or *serious pantomime*.

Bathylus an Alexandrian, and a freedman of Me-cenas, took upon himself to represent such subjects as required a certain liveliness and agility. He was handsome in his person; and the two great scourges of Roman follies, Persius and especially Juvenal, speak of him as the gallant of every woman in Rome. The latter, in his cynic style, even goes so far as to say, that when Bathylus performed the dance called, after the name of a celebrated female dancer, *Chiromeros-Leda*, the gravest matron was turned off her guard, and the young virgin longed for the dancer's addresses.

Nature had been excessively partial to those two men. They were endowed with genius, and all the exterior charms that could captivate the eye. By their study, application, and the desire to establish a lasting reputation, they displayed to the greatest advantage all the resources which the art of dancing could supply. These, like two phenomena, disappeared, and never did the world see "their like again." Government withdrew its protection, the art gradually sunk into obscurity, and became even entirely forgotten on the accession of Trajanus to the empire.

Thus buried with the other arts in entire oblivion, dancing remained uncultivated till about the 15th century, when ballets were revived in Italy at a magnificent entertainment given by a nobleman of Lombardy at Tortona on account of the marriage between Galeas Duke of Milan and Isabella of Arragon. Every resource that poetry, music, dancing, and machinery could supply, was employed and exhausted on the occasion. The description given of so superb an entertainment excited the admiration of all Europe, and excited the emulation of several men of genius, who improved the hint to introduce among their countrymen a kind of spectacle equally pleasing and novel.

It would seem, however, that at first the women had no share in the public or theatrical dance; at least we do not see them mentioned in the various entertainments given at the opera in Paris till the 21st of January 1681, when the then Dauphiness, the Princess of Conti, and some other ladies of the first distinction in the court of Louis XIV. performed a ballet with the opera

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opera called *Le Triomphe de l'Amour*. This union of the two sexes served to enliven and render the spectacle more pleasing and more brilliant than it ever was at any other period. It was received with so much applause, that on the 16th of May following, when the same opera was acted in Paris at the theatre of the Palais Royal, it was thought indispensable for the success of that kind of entertainment to introduce female dancers. They have continued ever since to be the principal support of the opera.

The dance is now in such commendation, that, particularly in France, the opera-house seems rather an academy for dancing than calculated for the representation of lyric poems. The disgusting and immoderate length of their recitatives is one of the chief causes of that general taste for dancing which prevails amongst them. A wit being asked one day what could be done to keep up an opera threatened with a most complete damnation? "Do! (says he); why, lengthen the dances and shorten the petticoats." So evident it is, that singing, though apparently the chief purpose of an opera, is by no means the most pleasing part of the entertainment for the spectators.

Thus, what was at first introduced as a mere accessory to the musical performance, became in process of time its only support; and this circumstance excited the emulation of several eminent ballet-masters. The art, however, of composing those grand dances, which are now so much admired, was for many years in a state of infancy, till Monsieur Noverre stepped forth and gave it that degree of perfection which it seems impossible to exceed. This celebrated ballet-master and performer, in a work lately published, has with great elegance and ingenuity delineated the nature, objects, and powers of dancing, enumerated the proper requisites to give it effect, and shown how much it may be ennobled by an acquaintance with the kindred arts.

Ballets, he observes, have hitherto been the faint sketch only of what they may be one day. An art entirely subservient, as this is, to taste and genius, may receive daily variation and improvements. History, painting, mythology, poetry, all join to raise it from that obscurity in which it lies buried; and it is truly surprising, that composers have hitherto disdained so many valuable resources.

According to our author, the reason why this art has remained so long in its infancy, is because its effects have been restrained to the transitory ones of fire-works calculated only to please the eye; and it never was supposed to have powers sufficient to speak to the heart: whereas it may vie, he says, with the best dramatic pieces, prove equally interesting, and captivate the spectator by the charms of the most complete illusion.

If ballets, therefore, says he, "are for the most part uninteresting and uniformly dull; if they fail in the characteristic expression which constitutes their essence, the defect does not originate from the art itself, but should be ascribed to the artists. Are then the latter to be told that dancing is an imitative art? I am indeed inclined to think that they know it not, since we daily see the generality of composers sacrifice the beauties of the dance, and give up the graceful *naïveté* of sentiment, to become the servile copiest of a certain number of figures, known and hackneyed for

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above a century; so that the ballets of Phaeton, or of any ancient opera, revived by a modern composer, would prove so very similar to former ones, that one would think they have undergone no alteration, and are the same in every step.

"Ballet-masters should consult the productions of the most eminent painters. This would bring them nearer to nature, and induce them to avoid, as often as possible, that symmetry of figures, which, by repeating the object, present two different pictures on one and the same canvas.

"Those symmetrical figures from right to left, according to my judgment, are supportable only in the entrées, which are not meant to express any thing in particular, but are only calculated to afford some relief to the principal dancers. They may be introduced in a general dance at the conclusion of an entertainment; they may also be admitted in the *pas* of four, six, &c. though in my opinion it be ridiculous even in this case to prefer the display of bodily strength and agility to expression and sentiment. But such figures must give way to nature in what we term *ballets d'action*. An instance, though perhaps not very forcible, may serve to elucidate and support my argument.

"At the sudden and unexpected appearance of some young fauns, a troop of nymphs take themselves to flight with equal affright and precipitation. The former are in pursuit of the latter with that eagerness which the very hope of pleasure can inspire. Now they stop to observe what impression they have made on the nymphs; these at the same time, and for a similar reason, check their career; with fear they survey their pursuers, endeavour to guess at their intentions, and provide for a retreat to some spot, where they may rest secure from the dangers that threaten them. Both troops now join, the nymphs resist, defend themselves, and at last effect their escape with no less swiftness than dexterity.

"This I call a busy active scene, in which the dance, as it were, should speak with energy. Here studied and symmetrical figures cannot be introduced, without a manifest violation of the truth, without destroying the rules of probability, and without weakening the action and lessening the effect.—This scene should be conspicuous; for its beautiful disorder, and the art of the composer, must here be the handmaid of nature.

"A ballet-master, devoid of taste and discernment, will make of this a mechanical piece of dancing, and thus deprive it of the effect it was calculated to produce for want of entering into the spirit of it. His nymphs and fauns will be arranged upon a parallel line; he will place the former in attitudes awkwardly uniform, and insist on the latter holding up their arms to an even altitude; rather than deviate from the beaten path, and the antique rules of opera dancing, he will cautiously avoid to have, on the right and left, his nymphs placed in unequal numbers, but will reduce a scene of action, which ought to be supported with spirit, to an exercise equally affected and uninteresting.

"Perhaps some ill-disposed critics, so far strangers to the art as not to judge of it from its various effects, will maintain, that the above scene should present only two different objects, the one portrayed in the love-

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sick fauns, the other expressed by the affright of the nymphs. But how many shades may serve to embellish those pictures? how varied may be the strokes of the pencil? how opposite the lights? and what a number of tints ought to be employed in order to draw from this twofold situation a multiplicity of images, each more lively and spirited than the other?

"As all men share the same passions, and these differ in proportion to their sensations and feelings, they may therefore be worked upon more or less powerfully in proportion as they manifest themselves outwardly with more or less force and impetuosity. This principle once acknowledged, and nature indeed enforces it daily, it would certainly be more to the purpose to diversify the attitudes and vary the expression; for then the pantomime action of each personage would be divested of a disgusting uniformity. The truth of imitation and the skill of the painter would conspicuously appear in giving a different aspect to the features, some of them expressing a kind of ferocity, others betraying less eagerness, these casting a more tender look; and to the rest, the languishing air of voluptuousness. The sketch of this first picture naturally leads to the composition of the second: here some nymphs appear divided between fear and desire; there some others express by the contrast of their attitudes the various emotions of their soul. Some are more scornful than their companions, whilst others betray a curiosity equal to their fears. This ensemble gives life to the whole picture, and is the more pleasing that it is perfectly consistent with nature. From this exposition, you will not hesitate to agree with me, that symmetry, the offspring of art itself, should never find place in the ballets d'action.

"I shall beg leave to enquire of all those who reason from habitual prejudice, whether they will look for their favourite symmetry in a herd of sheep flying from the wolf, or amongst wretched peasants leaving their huts and fields, in order to shelter themselves from the fury of a party of enemies? By no means. But the art lies in concealing art itself, my aim is by no means to introduce disorder and confusion; on the contrary, I will have regularity even in irregularity. What I most insist on is, the introducing of well concerted groups, situations forcibly expressed, but never beyond nature, and above all, a certain ease in the composition, which betrays not the labour of the composer. As for the figures, they are likely to please only in proportion as they quickly succeed each other, and are devised with equal taste and elegance."

A ballet perfect in all its parts, our author proceeds to observe, is a picture drawn from life, of the manners, dresses, ceremonies, and customs of all nations. It must therefore be a complete pantomime, and through the eyes speak, as it were, to the very soul of the spectator. If it wants expression, if it be deficient in point of situation and scenery, it degenerates into a spectacle equally flat and monotone.

According to Plutarch, a ballet is, if the expression may be allowed, a mute conversation, or a speaking and animated picture, whose language consists of motions, figures, and gestures.—These figures, says our author, are unlimited in their number, because there are a thousand things that the ballet may express.

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Phrynicus, one of the oldest tragedy writers, says, that he could find in our ballet as many figures as the sea rolls waves in a high winter tide.

A well composed ballet, therefore, may do without the assistance of words: M. Noverre even remarks that these only serve to weaken the action, and partly destroy its effects. He has no opinion of a pantomime which, in order to be understood, must borrow the help of a verbal explanation. "Any ballet whatever (says he) destitute of intrigue, action, and interest, displaying nothing more than the mechanical beauties of the art, and though decorated with a pompous title unintelligible throughout, is not unlike those portraits and pictures to which the painters of old subscribed the names of the personages and action they meant to represent: because they were imperfect in point of imitation, the situations weakly expressed, the outlines incorrect, and the colours unseemly.

"When dancers shall feel, and, Proteus-like, transform themselves into various shapes to express to the life the conflict of passions; when their features, their very looks, shall speak their inward feelings; when, extending their arms beyond the narrow circle prescribed by the rigid rules of pedantry, and with equal grace and judgment giving them a fuller scope, they shall by proper situations describe the gradual and successive progress of the passions; when, in fine, they call good sense and genius to the assistance of their art; then they may expect to distinguish themselves: explanatory speeches will become useless; a mute but powerful eloquence will be substituted to much better effect; each motion will be a sentence; every attitude will pourtray a situation; each gesture convey a thought, and each glance a new sentiment: every part will please, because the whole will be a true and faithful imitation of nature."

A ballet, in whatever style it may be, should, according to Aristotle, be composed, as well as poetry, of two different parts, which he calls parts of quality and parts of quantity. Nothing exists in nature without matter, form, and figure: the ballet therefore becomes a mere non-entity, if it be deficient in any of those essential parts, which mark and constitute the being of any one thing animate or inanimate. The matter here is the subject intended for representation; its form consists in the ingenious distribution of the plan; and the various compounding parts constitute its figure. Form therefore contains the parts of quality, and the extent the parts of quantity.

Thus it appears, that ballets are in some degree subject to the rules of poetical composition. They, nevertheless, differ from tragedies and comedies, in that the former are not subject to the three unities of time, place, and action: Yet they require an unity of plot, in order that the various scenes may meet and end on the same point.—The ballet, therefore, may be termed the brother of the drama, though not restrained to its stricter rules, which only serve to cramp the imagination, check its flight, and confine genius; and if adhered to, must set aside all thought of composition of ballets, by depriving them of their chief ornament, pleasing variety.

M. Noverre considers tragedy as the subject most suitable for the art of dancing. The former abounds in noble incidents, situations, &c. and these produce

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the best stage effects. Besides, the passions are more forcibly expressed by great characters than by common men: the imitation is of course less difficult, the action in the pantomime more significant, natural, and intelligible.

"The business of a skilful master (he observes), is to foresee, as it were at one glance, the general effect that may result from the ensemble, and never give the preference to one single part over the whole. The only way for him to bestow his thoughts on the greatest number, is to forget for a while the principal characters of the drama; if his whole attention should entirely be taken up with the parts of his first dancers of both sexes, the action is suspended, the scenes are slow in their progress, and the whole performance must fall short of its desired effect.

In the tragedy of *Merope* by Voltaire, the principal characters are *Merope*, *Polifonte*, *Egiste*, and *Narbas*: But although the parts of the inferior actors are not of equal importance, yet they all concur to the general action, and to the progression of the drama, which would appear deficient in some parts, should either of those characters be wanting in the representation. No useless personage should be obtruded on the stage. Every thing therefore that may tend to weaken the effect of the drama ought to be carefully avoided, and only that number of actors introduced which is barely requisite for the execution of the performance.

"A ballet is a production of the same kind. It must be divided into acts and scenes, each of which, as well as the act itself, must have its beginning, its middle, and its end; that is, in other words, exposition, plot, and denouement.

"I have observed above, that the principal performers in a ballet should be forgotten for a while: My reason is, that, in my opinion, it is easier to give striking parts to *Hercules* and *Omphale*, *Ariadne* and *Bacchus*, *Ajax* and *Ulysses*, &c. than to 24 persons in their retinue: If these have nothing to say, they are superfluous, and of course ought to be rejected; but, if they are to speak, let their conversation be consonant with that of the principal characters.

"The difficulty, therefore, does not lie in assigning a primary and distinctive part to *Ajax* or *Ulysses*; since it springs naturally from the importance of their situation in the play: but in introducing the figures in a becoming style, giving them parts of more or less importance, connected with the action of the two heroes; in introducing women, some of whom will appear concerned for *Ajax*, and the greater number showing their partiality for *Ulysses*. The triumph of the latter, the former's death, present to the man of genius a series of images that vie with each other in point of interesting and picturesque situations. These, by means of a colouring skilfully contrasted, cannot but produce the most lively sensations. In fine, a ballet pantomime should be dramatic in all its parts; and the figure-dancers, who succeed to the principal performers, ought to continue the scene, not by a number of symmetrical figures and studied steps, but by that kind of animated expressions which keeps up the attention of the spectators to the main subject for which the preceding actors have prepared the audience.

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"Yet, either through ignorance or in consequence of a vitiated habit, there are but few well supported ballets. Dance is introduced for the mere purpose of dancing: the end is supposed to be answered by the mechanical motions of the feet, or by high jumping, and that the idea which people of real taste may have of a ballet is fully answered, when inactive performers are introduced in it, who mix and jostle each other, presenting a confused heap of pictures, sketched without taste, awkwardly grouped, and totally devoid of that harmony and expression, the offspring of the soul, which alone can embellish art by giving it life."

M. Noverre, in considering the knowledge necessary for attaining perfection in the present art, observes, that mythology, ancient poetry, and chronology, ought to be the primary studies of a ballet-master, who ought also to possess a genius for poetry and painting, since the art borrows all its charms from a perfect imitation of nature.

A slight knowledge of geometry cannot but prove very advantageous, as it will help the master to introduce his figures in due proportion, to calculate exactly, and execute with precision. By means of that unerring guide, he will retrench every superfluous accessory, and thus enliven the performance. Taste will introduce elegance, genius create variety, and judgment direct the whole.

What is a ballet but a piece of more or less complicated machinery, which strikes or surprises the beholder by its various effects, only in proportion as those are diversified and sudden? That chain and connection of figures, those motions succeeding each other with rapidity, those various forms turning contrary ways, that mixture of different incidents, the ensemble and harmony which mark the steps and accompany the exertions of the dancers; do not all these give you the idea of a mechanism most ingeniously contrived?

Ballets are often built on præternatural subjects: several of them require the assistance of machinery. For instance, few of the subjects taken from *Ovid* will be fit for representation, without a change of scenery, flights through the air, metamorphoses, &c. This author therefore must never be taken for a model, unless the ballet-master himself be an expert mechanist. None are to be found out of the capital, but journey-men and stage-sweepers, whom the patronage of some mighty son of the sock has preferred by degrees to that employment. The talents of those upstarts consist in, and reach not beyond, the capacity of putting up the lights which they were wont to snuff for many years, or letting down awkwardly a glory of the most wretched style. The theatres in Italy are not remarkable for their machinery; those of Germany, built upon the same plan, are not less deficient in point of that enchanting part of stage-exhibition; so that a ballet-master must, in these countries, find himself greatly embarrassed, if unskilled in the mechanical arts, he cannot convey his ideas with perspicuity, by building for that purpose small models, which are better understood by the generality of workmen than the clearest verbal explanation.

The theatres of Paris and London are the best supplied with these resources. The English are very ingenious: their stage machinery is more simplified than the French, and of course produce a quicker effect.

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A composer who wishes to rise superior to the generality of ballet-masters, should study the painters, and trace them in their various manners of drawing and composing. Both arts have the same object in view, whether it be for taking likenesses, mixing the colours and preserving the clare-obscure; or for grouping the figures properly, laying on the draperies, throwing the former into elegant attitudes, and giving them life and expression.

Upon the same principle, the knowledge of anatomy will serve to render more clear and intelligible the precepts which he has to lay down for his pupils. It will be an easy matter for him to distinguish properly between the natural and habitual defects in their conformation. These are the greatest obstacles that so often impede the progress of young beginners. Thus once knowing the cause, he will be able to remedy the evil; as his lesson and precepts will then be the result of strict attention, they never can fail of becoming profitable.

Drawing is too useful in the composition of ballets for the master not to pay a serious attention to that art; it will contribute to the beauty of the forms; it will give to the figures an air of novelty and elegance, animate the groups, throw the body into graceful positions, and show the attitudes in a just precision.

A ballet-master who is no proficient in music, will make a bad choice of his airs. He will not enter into the spirit or character of them. The motions of his dancers will not beat time with that precision and delicacy which are absolutely necessary, unless he is endowed with that sensibility of organ which is more commonly the gift of nature than the result of art, and is far above what may be acquired by long practice and steady application.

A good choice of music is as essential to dancing, as the choice of words and the phrasing of a speech is to eloquence. It is the tune and time of the music that fix and determine the motion of the dancers. If the former be uniform and devoid of taste, the ballet will, like its model, be dull and unmeaning.

By this immediate connection between music and dancing, it clearly appears, that, from a practical knowledge of the former, the ballet-master will derive the greatest advantages. He will then be able to impart his thoughts to the composer; and if taste and knowledge combine together, he will either set the music himself, or at least furnish the composer with the principal outlines, to characterise the action of the dancer; as this will be varied and expres-

sive, the ballet cannot fail of being equally so. Music well composed should paint and speak; and the dance set to those sounds, will be, as it were, the echo to repeat the words. If on the contrary it be mute, if it speak not to the ear of the dancer, then all sentiment and expression are banished from the performance.

As nothing can appear trifling to the man of genius, nothing should seem so to the ballet-master. It is impossible for him to distinguish himself in his profession, unless he applies to study those arts which have been just mentioned. Yet to insist that he should be master of them all in that degree of perfection which is attainable only by those who give themselves entirely up to the study of each of them in particular, would be requiring a mere impossibility.

All that can be deemed strictly requisite, therefore, is a general knowledge, a slight tincture of those sciences which, by the connection they have with each other, are likely to contribute to the improvement of the art and to its reputation. From the natural union, however, that subsists between the arts, and from the harmony which reigns amongst them, that ballet-master will ennoble his composition with the most fire, spirit, liveliness, and interest, who has most genius and imagination, and whose knowledge is most extensive.

As to performers, and their personal qualifications: The first point to which it is directed to pay attention when one takes up the profession of a dancer (at least so soon as he becomes capable of reflection), is his bodily formation: If one is conscious of any natural defects which seem irremediable by art, it will be best immediately to renounce every idea that may have been formed of the advantage arising from popular approbation. But where personal defects can be reformed by application, study, or the advice and assistance of judicious masters, then it becomes an essential concern quickly to exert every effort, before the parts to be corrected have acquired strength and consistence, before nature has unalterably taken her bent, and the error becomes too habitual and inveterate.

Among other personal defects, there are two which deserve particular notice: The first is that of being *jarreté*, "knock-knee'd;" the other of being *arqué*, or "bow-legg'd."

A man is said to be *jarreté* or in-knee'd when the haunches are strait, and incline inwardly, the thighs lie near, and the knees are protuberant, and so close that they touch and knock together at every step, even when the feet are at a distance; so that such a person, from the knees to the feet, makes the figure of a triangle; in people of this formation, likewise, there is a clumsiness in the inside of the ankle, a great elevation in the instep, while the *tendo Achillis* is not only very slender, but much extended in the articulation.

The other defect, of being *arqué* or bow-legged, is the opposite of the former, and exists in the same parts, namely, from the haunches to the feet, which describe a sort of bow or arch; for the haunches being in this case hollow, the thighs and knees stand open, and at a distance, and produce the same effect in the lower extremities, so that they can never be brought in proper contact like those of a well-shaped person; their

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their feet also are long and flat, the ankle juts out, and the *tendo Achillis* is large and closely inserted. A single view of these diametrically opposite effects, prove more forcibly than any arguments, that the instructions which might correct the errors of one of this sort of dancers, would tend only to increase the defects of the other; and that consequently their aim and study ought to be correspondently opposite.

The dancer whose defect is of the first kind, that of being *jarreté*, must use the means which art furnishes him with, to separate and widen the too closely connected parts. The first step to this end is to turn the thighs outwardly, endeavouring to move them in that position, by taking the advantage of the free rotation which the thigh bone has in the *cotiloidal* cavity of the haunches: assisted by this exercise, the knees will follow the same direction, and return as it were to their proper position. The knee-pan (which seems intended to prevent the knee from being thrown too far backward from its insertion) will stand perpendicular over the point of the foot, while the thigh and leg thus placed describe a line that will ensure firmness and stability to the whole body.

The second remedy to be used is, to keep the knees in a constant bend, and to make them appear very much stretched, without their being really so. This must be the result of long and constant practice; but when the habit is firmly contracted, it is impossible to return to the former vicious position, without causing an insupportable pain and numbness. Some dancers have been able to conceal this defect so artfully, that it was entirely undiscoverable, unless in dancing strait-capers or in very quick movements. The reason of its becoming visible at such times is, that the contraction of the muscles in the effort of leaping makes them stiff about the articulation, and forces every part into its former and natural situation; the knees thus strained, turn inwardly, and (for the time) regain their usual protuberance, which becomes an obstacle to the display of the *entre-chat*. The more these parts connect, to the greater distance will the lower extremities be thrown; hence the legs, neither being able to beat nor cross, remain motionless at the time of the knees rolling over each other, while the *entre-chat*, being neither cut, beat, nor crossed by the feet, is deprived of that life and brilliancy which are its chief merit.

A person thus formed, should entirely renounce the *entre-chat*, *cabrioles*, and every kind of dance that requires very quick and complicated movements, as it will infallibly render him weak and powerless; for the haunches being so strait, the muscles that are attached to them (whereon the motions of the trunk depends), have not a proper and easy play, which will be always in proportion to the dimension of these bones, because then the muscles shoot out or divide from a point more distanced from the centre of gravity: therefore the grander sort of dancing, and *terre à terre*, is the best adapted to such dancers; and we may add, that whatever they lose on the score of strength, they regain in elegance and address. They are luxuriant and shining in the simplest parts; easy, even in difficult ones, where no great efforts are required; just in their execution; elegant in their display; and their spring is always exerted with an infinity of grace, as they dexterously employ every resource which the motion of the instep

can give them. These are advantages which atone for want of personal strength; and in dancing agility and address are always preferable to the mere efforts of force.

The art of concealing or overcoming the defects of such performers as we have characterized by being *arqué* or bow-legged, is in a great measure the opposite of the former; namely, by endeavouring to bring together the parts that are too much separated, and lessening that vacancy which is particularly observable between the knees. These require no less exercise than the former in turning the thighs outwardly, and generally are less able to disguise their faults: for being more robust and vigorous, there is less pliability in their muscles, and their joints move less easily. And it must be added, if the deformity results from a natural distortion of the bone, labour will be as useless as all the aids of art will be impotent.

It was remarked, that dancers of the first class, or *jarretés*, should preserve a slight genuflexion or bend in their performance; while these, for the opposite reason, ought to keep their limbs rather extended or stretched, and to cross more closely, by that means diminishing the vacancy occasioned by the natural separation. Such dancers are nervous, lively, and brilliant in all cases which require more strength than elegance; vigour and agility may be inferred from their muscular force, and the firmness and resistance of their articular ligaments; lively in their dancing, because they cross low rather than high; and requiring on that account less space in beating time, they perform it with more liveliness: they display more brilliancy, because the light becomes visible between the limbs at the moment of crossing and recrossing; and this is precisely the *clair-obscur* of dancing; for if the time in the *entre-chat* or cross-caper is neither cut nor beat, but rolled or huddled over, there is no light to give distinction to the shadows, and the limbs, so closely joined, present an indistinct and effectless mass.

These dancers have less address than the others, as they generally depend on their strength; and indeed that strength is a constant obstacle to ease and pliancy; if it forsakes them a single moment, they appear awkward and ridiculous: nor can they conceal their situation by any trifling display; that requiring mere address, would give them time to recover, which their want of natural elasticity otherwise prevents.

Dancers who are *jarretés*, are weak, slender, and delicate; the others, strong and vigorous, large made, and nervous. It is a common opinion, that stout, squat-built men are heavy and sluggish; which they doubtless are in respect of bodily weight: but the notion is erroneous so far as regards dancing; for activity owes its very existence to muscular strength, and every man who has not a requisite share of that will always fall heavy. The reason is evident; the weak parts, in the instant of falling, not being able to resist the stronger (that is, the weight of the body, which acquires a *momentum* in proportion to the height it falls or descends from), yield and bend; and it is at the moment of relaxation or flexion that the noise of the fall is heard; a circumstance greatly lessened, or rather entirely avoided, when the body is able to maintain itself in a perpendicular direction; and while the muscular spring is sufficient to oppose that descending force,

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force, and vigorously resist a shock which would otherwise destroy it.

Nature has not exempted the fair sex from those imperfections we have been taking notice of; but art, and the use of petticoats, come fortunately to the help of the female dancer. The hoop conceals a multitude of defects, which the critic's curious eye cannot ascend to discover. Most of them dance with their knees open, as if they were naturally *arquées*; but, thanks to this bad habit, and to the petticoats, they appear more brilliant than the men; because, as they beat from the lower part of the leg, they perform the time quicker than we, who, concealing nothing from the spectator, are obliged to beat at a greater extent, and to do it originally from the haunch.

The vivacity of the sex contributes much to the brilliancy of their execution; though certainly not less is owing to the petticoats, which, by concealing the length of the limbs, catch the attention, and fix it more advantageously: thus all the fire of the beats being united in one point, appears more lively and brilliant; while the eye embraces one object only, without being hurried and confused in proportion to the space it has to overlook.

To perfection in dancing, M. Noverre observes, nothing is more necessary than the outward turn of the thigh; yet nothing is more natural to mankind than the contrary position; it is born with us. It will be superfluous, in establishing this truth, to cite for example the Asiatics, the Africans, or any people who dance, or rather leap and move, without art or principle. If we attend only to children, or the rustic inhabitants of the villages, we shall see that they all turn their feet inwardly. The other position is purely invention; and a proof, far from equivocal, of this fault being an imaginary one, is, that a painter would transgress as much against nature as the rules of his art, were he to place the feet of his portrait in the situation of a dancer's. It is plain, then, that to dance elegantly, walk gracefully, or address ourselves with ease and manliness, we must absolutely reverse the nature of things; and force our limbs, by artificial applications equally tedious and painful, to assume a very different situation from what they originally received.

Such a change, however necessary in this art, can only be accomplished by laying its foundation in the earliest stages of infancy, when every bone and muscle is in a state of pliability, and capable of receiving any direction which we choose to give them.

The difficulty of attaining the outward position of the limbs, is owing to our ignorance of the proper arts to be employed. Most beginners persuade themselves that it is to be acquired by forcing the feet to turn outward; and though this part may readily take such a direction, from their suppleness, and being so easily moved at their articulation with the leg; yet this method is so far false, as it tends to displace the ankle-bones, and besides has not any effect upon either the knees or thighs.

Neither is it possible to throw the knees outwardly without the assistance of the thigh. The knees have only two motions, bending and extension; the one drawing the leg backward, the other throwing it forward: they have no power, therefore, of themselves to determine or assume an outward position; but must

eventually depend on the thigh, which entirely commands all the lower parts of the body, and turns them in consequence of its own rotatory motion; so that, in fact, whatever motion or position that takes, the knee, foot, and leg, are obliged to follow.

M. Noverre condemns the *tourne-haunch* as a clumsy and useless invention, which, instead of producing any good effect, serves only to lame those who use it, by giving a distortion to the waist, much more disagreeable than what it was intended to remove.

The simplest and most natural means are those which reason and good sense ought to adopt; and of these a moderate but continual exercise is indispensable: the practice of a circular motion or turning of the legs, both inwardly and outwardly, and of boldly beating at full extent from the haunch, is the only certain exercise to be preferred. It insensibly gives freedom, spring, and pliancy; while the motions acquired by using the machine have more an air of constraint, than of that liberty and ease which should shine conspicuous in them.

It has been maintained, that a strong and vigorous person ought to spring higher and better than a slender or weaker man. But experience (says M. Noverre) daily proves the contrary. We see many dancers, who cut the time very strong, who beat with much vigour and firmness, and yet cannot spring to any considerable perpendicular elevation: for an oblique elevation, or on one side, ought here to be distinguished from the former; the latter is faint, and depends entirely upon address in the dancer. There are others, again, whose slender form renders their execution less bold, and rather elegant than forcible, rather lively than nervous, but who can rise to an extraordinary height: it is to the shape and formation of the foot, and to the length and elasticity of the tendon, that this power of elevation is originally owing; the knees, the loins, and the arms, all co-operate in this action; the stronger the pressure upon the muscles, the greater is the re-action, and the spring or leap is proportionably high. The alternate motion of the knees participates with those of the instep and *tendo Achillis*, though the latter are still the most essential auxiliaries; the muscles of the trunk lend their assistance, and preserve the body in a perpendicular direction; while the arms, running imperceptibly to the mutual assistance of all the parts, serve as wings to counterbalance the machine.

Observe all those animals that have long and slender ancles, as stags, roebucks, sheep, cats, monkeys, &c. and you will perceive that they have a quickness and facility of springing and leaping, which animals differently formed in that part can never obtain.

But were a man endowed with all the other qualities essential to the perfection of the art, yet still without strength and firmness in his loins he never can be a good dancer. This strength is certainly the gift of nature; but it may be much improved by the assiduity of an able teacher. We daily see dancers who have neither perpendicularity nor firmness, and whose performance is altogether unstable and irregular; and we likewise see others, who, though they possess not so great a degree of native force, have all the appearance of sinewy firmness and muscular strength, in their haunches, back, and loins. Art has furnished a substitute for nature, in the lessons of some excellent teacher,

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teacher, who has convinced them, that when once they forego an attention to the loins, it is impossible to keep themselves in a right perpendicular line; and therefore all their exertions will be devoid of taste: that all wavering and instability in this part is inconsistent with perpendicularity and firmness, and will certainly cause distortion of the shape and waist: that the dépression and sinking of the body deprives the lower parts of that liberty which is necessary to their easy motion: that hence the body is undetermined in its positions; frequently drags the limbs; and constantly loses the centre of gravity; and therefore cannot recover an equilibrium, but after various efforts and contortions totally repugnant to the graceful and harmonious motions of good dancing.

Such is the performance of those dancers who have no strength in their loins, or at least do not exert what they possess. In order to dance well, the body should be firm and steady; it should particularly be motionless and free from wavering while the legs are in exertion; for when the body follows the actions of the feet, it displays as many grimaces and distortions as the legs execute different steps; the performance is then robbed of its ease, uniformity, harmony, exactness, firmness, perpendicularity, and equilibrium; in a word, of all those beauties and graces which are so essential to make dancing give pleasure and delight.

Many dancers are of opinion, that to be soft and luxuriant, the knees must be bent very low. But in this they are most certainly mistaken; for a more than ordinary flexion of the knees gives rather a dryness and insipidity to dancing; and a dancer may be very inelegant, and jerk, as it were, all his movements, as well in bending very low as in not bending at all. The reason will appear natural and evident, when we reflect, that the time and motions of the dancer are strictly subordinate to the time and movements of the music: pursuing this principle, it is not to be doubted, that when the flexion of the knees is greater than what the air or time of the dance requires, the measure then drawls along, languishes, and is lost. To recover and catch again the time which this unnecessary flexion had destroyed, the extension of the knee must be equally quick; and it is this sudden transition which gives such a harshness and sterility to the execution, and renders it as disgusting as the opposite fault of stiffness and inflexibility.

That luxuriant softness requires more to its perfection than merely an exact flexion and extension of the knees: the spring of the instep must add its assistance, while the loins must balance the body to preserve these springs in proper bounds. It is this rare harmony of motion (says M. Noverre) which has procured the celebrated Dupré the glorious title of the *God of Dance*.

There are many dancers, and of an inferior class only, who can display a great variety of steps, badly enough chosen to be sure, and often displayed without either judgment or taste; but it is very uncommon to find among them that exactness of ear (that rare but innate talent of a dancer), which gives life to and stamps a value upon steps, and which diffuses over all their motions a spirit that animates and enlivens them.

There are some ears stupid and insensible even to the most simple, plain, and striking movements; there are

others, more cultivated or refined, that can feel and comprehend the measure, but cannot seize its intricacies; and there are others again to whom the most difficult airs and movements are easy and intelligible, and at once comprehended. It is nevertheless certain, that a dancer may have a very perfect and nice feeling, and yet not make his feelings intelligible to the audience, if he has not the art of commanding those resources which depend upon a proper exertion of the *coup de pied*: awkwardness becomes visible where the exactest proportion was necessary; and every step which would have been becoming, and produced the happiest effect, had it been smartly introduced at the conclusion of the measure, will now be cold and lifeless, if all the limbs are in motion at once. It requires more time to move the whole body than to exert any single member; the flexion and extension of the instep is more readily and quickly made than the reciprocal motion of all the joints. This principle allowed, that the dancer is destitute of precision, who (supposing he possesses a musical ear) knows not how to time his steps; the elasticity of the instep, and the more or less active play of the muscles, add to the natural sensibility of the ear, and stamp value and brilliancy on the dance. The joint charms of the harmony springing from the movements of the music, and the motions of the dancer, captivate even those whose ears are the most insensible and least susceptible of musical impression.

There are some countries where the inhabitants in general are endowed with this innate musical taste. The Palatinate, Wirtemberg, Saxony, Brandenburg, Austria, and Bohemia, supply the orchestres of the German princes with many excellent musicians and eminent composers. The Germans, indeed, are born with a very lively and just taste for music, and have in them the seeds of true harmony; nothing is more common than to hear concerts, both in the streets and in the shops of their mechanics, performed with the greatest skill and exactness.

Such a natural and native taste for music as we have been mentioning, is usually accompanied by, or includes in it, a similar one for dancing; they are kindred arts; the tender and harmonious accents of the one excites and produces the agreeable and expressive motions of the other, and their union entertains the eye and ear with animated pictures of sentiment; these two senses, again, convey to the heart the interesting images which affect them, while the heart, in its turn, communicates them to the mental faculty: thus the pleasure resulting from the harmony and intelligence of these two arts, enchants the spectator, and fills him with the most seducing pleasures of voluptuousness.

Dancing is probably no where varied to such a degree as in the provinces of Germany; where the well known dances of one village are strangers in the adjacent hamlet; their songs of mirth and merriment have no less different airs and movements, though they are all marked with that of gaiety. Their dances are pleasing and engaging, because the offspring of simple nature; their motions express joy and pleasure; and the exactness with which the whole is performed, gives a peculiar agreeableness to their steps, gestures, and attitudes. Do they spring?—a hundred persons, assembled round an oak, or some ancient pillar, seize

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the time at one instant, bound up and descend with the same exactness. Do they wish to mark the measure by a *coup-de-pied*?—all strike with one consent; or when they catch up their women, you see them all in the air at an equal height, nor do they descend but at the precise note that marks the time.

The counter-point, which is doubtless the touchstone of a delicate ear, is to them an object of no difficulty; hence their dance is so particularly animated, and the nicety of that organ has the effect of giving their different motions an air of gaiety and variety altogether exquisite.

A dancer whose ear is untuned to harmony, displays his steps without order or regularity, wanders from his part, and pursues the measure without being able to reach it: devoid of judgment, his dancing has neither sentiment nor expression; and the music which should direct his motions, regulate his steps, and guide his time, serves only to expose his imperfections and insufficiency. The study of music should therefore be applied to for the purpose of obviating this defect, and giving more sensibility and exactness to the organs of hearing.

It will not be expected that we should proceed to give a description of all the intricacies and combinations of steps that are or can be exerted in dancing; or enlarge on the mechanical particulars of the art. A dissertation on the latter would be insipid and disgusting; for the language of the feet and limbs is addressed to the eyes, not to the ears: and a detail of the former would be endless, since every dancer has his peculiar manner of joining or varying the time. It may be sufficient just to mention on this point, that it is in dancing as in music, and with dancers as with musicians: Dancing does not abound with more fundamental steps than music with notes; but there are octaves, breves, semibreves, minims, crotchets, double and treble crotchets; times to count, and measures to follow. This mixture, however, of a small number of steps, and a few notes, furnishes dancers with a multitude of connections and a variety of figures; taste and genius will always find a source of novelty in arranging them in different manners, and to express various ideas. Slow and lengthened, or quick and precipitate steps, and the time correspondently varied, give birth to this endless diversity.

Country-DANCE. See *COUNTRY-DANCE.*

Country-Dance, commonly so written, and hence seeming to imply a rustic way of dancing borrowed from country people or peasants, is by others supposed to be a corruption of the French *Contre-danse*, where a number of persons placing themselves opposite one to another begin a figure.

Rope-DANCER, *schœnobates*, a person who walks, leaps, dances, and performs several other feats, upon a small rope or wire.

The ancients had their rope-dancers as well as we. These had four several ways of exercising their art: The first vaulted, or turned round the rope like a wheel round its axis, and there hung by the heels or neck. The second flew or slid from above, resting on their stomach, with the arms and legs extended. The third ran along a rope stretched in a right line or up and down. Lastly, the fourth not only walked on the rope, but made surprising leaps and turns thereon.

They had likewise the *cremnobates* or *orobates*; that is people who walked on the brinks of precipices: Nay more, Suetonius in *Galba*, c. 6. Seneca in his 85th Epistle, and Pliny, *lib. viii. c. 2.* make mention of Elephants that were taught to walk on the rope.

St Vitus's DANCE. See *MEDICINE-Index.*

DANCETTE, in heraldry, is when the outline of any bordure, or ordinary, is intended very largely, the largeness of the indentures being the only thing that distinguishes it from indented.

DANCING. See *DANCE.*

DANCING-Girls of Egypt. See *ALME.*

Dancing-girls are employed all over the east, as affording great diversion at all public entertainments. They are all prostitutes; and by the laws of their society, are bound to refuse no one for their price, which is rated according to their beauty and other accomplishments. There are even particular sets of them appropriated to the service of the Gentoo temples, and the use of the bramin priests who attend them. These poor creatures say that they were first debauched by their god, and afterwards by him conigned over to the use of the priests who belong to his temples.

These dancing-girls, whether in a settled or unsettled condition, live in a band or community under the direction of some superannuated female of the same profession, under whom they receive a regular education, and are trained up in all the arts of love and pleasing, like scholars in an academy. Thus they acquire the art of captivating the affections of the other sex to such a degree, that nothing is more common than for one of the princes or chief people of the country to take a liking to one of these girls, and waste immense sums on her, though at the same time their own haram is stocked with beauties far superior, and who are besides possessed of the natural modesty of the sex, to which the others have not the smallest pretensions. Thus some of these girls acquire immense wealth. In the neighbourhood of Goa, for instance, on a part of the continent bordering on the district of that island, the dancing girls founded a village, after being driven from Goa by the zeal of the archbishop. Here they reside in a body corporate, and attend the parties of pleasure of the noblemen and principal inhabitants, for it is not every one's purse that can afford them. Here many of them acquire considerable fortunes by this scandalous traffic, and throw it into a common stock for the sake of carrying on merchandise; being concerned in shipping and the most profitable voyages, for which they have regular factors and brokers.

The dress of these women varies according to the country they live in; but in all it is the most gorgeous imaginable. They are loaded with jewels, literally from top to toe, since even on their toes they wear rings. Their necks are adorned with carcanets, their arms with bracelets, and their ancles with chains of gold and silver, often enriched with precious stones. They also wear nose-jewels, which at first have an odd appearance, but to which the eye is soon reconciled. In Indostan, these dancing-girls, as well as the other women of the country, have a peculiar method of preserving and managing their breasts, which at the same time makes no inconsiderable part of their finery.

They

Dance

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Dancing.

Dancing.

They inclose them in a pair of hollow cases, exactly fitted to them; made of very light wood, linked together and buckled at the back. These at once confine their breasts so that they cannot grow to any disgustfully exuberant size; though, from their smoothness and pliancy, they play so freely with every motion of the body, that they do not crush the tender texture of the flesh in that part, like the stiff whalebone stays in use among the Europeans. The outside of them is spread over with a thin plate of gold or silver, or set with gems, if they can afford it. Another occasional ornament the dancing-girls put on, particularly when they resort to their gallants, viz. a necklace of many loose turns, composed of flowers strung together, which they call *mogrees*, somewhat resembling Spanish double jessamy, but of a much stronger and more agreeable fragrant odour, and far preferable to any perfumes. "They have nothing (says Mr Grose) of that nauseous boldness which characterises the European prostitutes, their style of seduction being all softness and gentleness."

With regard to the performances of these women as dancers, we have various accounts. The author of *Memoirs of the late War in Asia*, acquaints us, "that their attitudes as well as movements are not ungraceful. Their persons are delicately formed, gaudily attired, and highly perfumed. By the continuation of wanton attitudes, they acquire, as they grow warm in the dance, a frantic lasciviousness themselves, and communicate, by a natural contagion, the most voluptuous desires to the beholders." Mr Ives seems to have been very cool on this subject. "I could not (says he) see any thing in their performance worthy of notice. Their movements are more like tumbling or showing postures than dancing. Their dress is thin and light; and their hair, necks, ears, arms, wrists, fingers, legs, feet, and even their toes, are covered with rings of gold and silver, made after a clumsy manner. They wear two rings in their noses; and by their staring looks and odd gesticulations, you would rather suspect them to be mad women than morris-dancers. The band of music that attends them is not less singular in its way: it is chiefly composed of three or four men, who hold two pieces of bell metal in their hands, with which they make an incessant noise; another man beats what he is pleased to call a drum; and that they may not want vocal music to complete the band, there are always two others appointed to sing. These last generally lay in their mouths a good loading of beetle nut before they begin; which, after having been well chewed, tinges the saliva with such a redness, that a stranger would judge them to bleed at the mouth by too violent an exertion of their voice. These gentry are called *ticky-taw* boys, from the two words *ticky-taw*, which they continually repeat, and chant with great vehemence. The dancing-girls are sometimes made use of in their religious ceremonies, as when the priests bring forth the images of their gods into the open fields on a car ornamented with lascivious figures, these girls dance before the images amidst a great croud of people; and having been selected for their superior beauty, are very profitable to their masters the priests, who are said to prostitute them to all comers."

Mr Grose informs us, that "these dances would hardly at first relish with Europeans, especially as they

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are accompanied with a music far from delightful, consisting of little drums called *gungums*, cymbals, and a sort of fife, which makes a hideous din, and are played on by men, whose effeminacy, grimaces, and uncouth shrivelled features, all together shock the eye and torture the ear. However by use we become reconciled to the noise, and may observe some not unpleasing airs, with which the dancers keep time: the words often express the matter of a pantomime dance, such as a lover courting his mistress; a procurer bringing a letter, and endeavouring to seduce a woman from one gallant in favour of another; a girl, timorous and afraid of being caught in an intrigue. All these love-scenes the girls execute in character dances, and with no despicable expression, if they are proficient in their art; for then their gestures, air, and steps, are marking and well adapted. In some of their dances, even in public, modesty is not much respected by the lascivious attitudes into which they throw themselves, without exposing any nudity; being richly clad and bedecked with jewels after their manner. But in private parties to which they are called, as in gardens, they give themselves a great loose, and have dances in reserve; in which, though still without any grossness in discovering their bodies, they are mistresses of such motions and lewdness of looks and gestures as are perhaps more provoking.

DANDELION, in botany, See LEONTODON.

DANDINI (Pietro), an eminent painter, was born at Florence in 1646, and received his first instructions in the art of painting from Valero Spada, who excelled in small drawings with a pen. Whilst he was under the care of that artist, he gave such evident proofs of a ready genius, that he was then placed as a disciple with his uncle Vicencio Dandini, a master of great reputation through all Italy, who had been bred up under Pietro da Cortona. He afterwards travelled through most of the cities of Italy, studying the works of those who were most distinguished; and resided for a long time at Venice, where he copied the paintings of Titian, Tintoretto, and Paolo Veronese. He next visited Parma and Modena, to design the works of Correggio; omitting no opportunity that might contribute to improve his hand or his judgment. When he returned to Florence, the grand duke Cosimo III. the grand duchess Victoria, and the prince Ferdinand, kept him perpetually employed, in fresco painting as well as in oil; his subjects being taken not only from sacred or fabulous history, but from his own invention and fancy, which frequently furnished him with such as were odd and singular, and especially with whimsical caricatures. He died in 1712.—This master had a most extraordinary talent for imitating the style of even the most celebrated ancient painters of every school, particularly Titian, Veronese, and Tintoretto; and with a force and elegance, equal to his subjects of history, he painted portraits, landscapes, architecture, flowers, fruit, battles, animals of all kinds, and likewise sea-pieces; proving himself an universal artist, and excellent in every thing he undertook.

He had a son, Octavio, who proved not inferior to him in any branch of his profession, and was an honour to his family and his country.

DANDINI (Cæfare), history painter, was born at Florence,

Dancing
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Dandini.

Danegelt
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Daniel

Florence; and was the elder brother and first instructor of Vincentio Dandini, the uncle of Pietro. This master had successively studied as a disciple with Cavalier Curradi, Passignano, and Cristofano Allori; from whom he acquired a very pleasing manner of designing and colouring. He was extremely correct in his drawing, and finished his pictures highly. Several noble altar-pieces in the churches of Florence are of his hand; and one, which is in the chapel l'Annonciata, is particularly admired.

DANEGELT, an annual tax laid on the Anglo-Saxons, first of 1 s. afterwards of 2 s. for every hide of land thro' the realm, for maintaining such a number of forces as were thought sufficient to clear the British seas of Danish pirates, which heretofore greatly annoyed our coasts.

DANEGELT was first imposed as a standing yearly tax on the whole nation, under King Ethelred, A. D. 991. That prince, says Camden, *Britan.* 142. much distressed by the continual invasions of the Danes, to procure a peace, was compelled to charge his people with heavy taxes, called *Danegelt*.—At first he paid 10,000 l. then 16,000 l. then 24,000 l. after that 36,000 l. and lastly 48,000 l.

Edward the Confessor remitted this tax: William I. and II. reassumed it occasionally. In the reign of Henry I. it was accounted among the king's standing revenues; but King Stephen, on his coronation-day, abrogated it for ever.

No church or church-land paid a penny to the *danegelt*; because, as is set forth in an ancient Saxon law, the people of England placed more confidence in the prayers of the church than in any military defence they could make.

DANDOLO (Henry), doge of Venice, a brave admiral and politician. With a Venetian fleet he took Constantinople in 1203, and had the moderation to refuse to be emperor. He died in 1250.

DANET (Peter), abbot of St Nicholas de Verdun, was one of the persons chosen by the duke of Montausier to write on the classics for the use of the dauphin. He had a share in Phædrus, which he published with notes and explications in Latin. He also wrote a dictionary in Latin and French, and another in French and Latin. He died at Paris in 1709.

DANIEL, the fourth of the greater prophets, was born in Judea, of the tribe of Judah, about the 25th year of the reign of Josiah. He was led captive to Babylon, with other young Hebrew lords, after the taking of Jerusalem by Nebuchadnezzar, who took them into his service. That prince gave them masters to instruct them in the language and sciences of the Chaldeans, and ordered them to be fed with the most delicate viands; but they, fearing that they should eat meat forbidden by the law of Moses, desired the king's officers to allow them only pulse. The wisdom and conduct of Daniel pleasing Nebuchadnezzar, that prince gave him several posts of honour. It is commonly believed, that this prophet, when but 12 years of age, made known the innocence of the chaste Susannah; but the learned are not agreed, that the young Daniel, who confounded the old men, was the same with this prophet. However, he explained Nebuchadnezzar's dream of the mysterious statue, which foretold the four great monarchies; on which account he was

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made perfect of the province of Babylon. In the reign of Darius, the king of the Medes, he refused to adore the golden statue of the king, and was cast into the lions den, when those beasts, tho' pinched with hunger, did him no manner of hurt. And he explained the characters written on the wall of the room where Belshazzar was feasting.

It is believed that Daniel died in Chaldea, and that he did not take advantage of the permission granted by Cyrus to the Jews of returning to their own country. St Epiphanius says he died at Babylon; and herein he is followed by the generality of historians.

The prophecies of David concerning the coming of the Messiah, and the other great events of after-times, are so clear and explicit, that, as St Jerom tells us, Porphyry objected to them, that those which related to the kings of Syria and Egypt, chap. xi. must have been written after the times of Antiochus Epiphanes; whereas his prophecy was translated into Greek 100 years before his time, and the translation was in the hands of the Egyptians, who had no great kindness for the Jews and their religion. And those prophecies foretelling the success of Alexander, chap. viii. 5. xi. 3. were shown to Alexander by the Jews, in consequence of which they obtained several privileges from him; (*Ant. lib. xi. c. 8.*) The style of Daniel is not so lofty and figurative as that of the other prophets; it is clear and concise, and his narrations and descriptions simple and natural: in short, he writes more like a historian than a prophet.

The Jews do not reckon Daniel among the prophets; part of his book, that is, from the fourth verse of his second chapter to the end of the seventh chapter, was originally written in the Chaldee language; the reason of which was, that in that part he treats of the Chaldean or Babylonish affairs: all the rest of the book is in Hebrew. The first six chapters of the book of Daniel are a history of the kings of Babylon, and what befel the Jews under their government. In the last six he is altogether prophetic, foretelling not only what should happen to his own church and nation, but events in which foreign princes and kingdoms were concerned.

DANIEL (Samuel), an eminent poet and historian, was born near Taunton in Somersetshire in the year 1562, and educated at Oxford; but leaving that university without a degree, he applied himself to English history and poetry under the patronage of the Earl of Pembroke's family. He was afterwards tutor to the lady Ann Clifford; and, upon the death of Spencer, was created poet-laureat to queen Elizabeth. In king James's reign he was appointed gentleman extraordinary, and afterwards one of the grooms of the privy-chamber to the queen consort, who took great delight in his conversation and writings. He wrote an history of England, several dramatic pieces, and some poems; and died in 1619.

DANIEL (Gabriel), a celebrated Jesuit, and one of the best French historians, was born at Rouen in 1649. He taught polite literature, philosophy, and divinity, among the Jesuits; and was superior of their house at Paris, where he died in 1728. There are a great number of his works published in French, of which the principal are, 1. An History of France, of which he also wrote an abridgment in nine volumes 12mo

Daniel

Danmonii,
Dante.

2. An History of the French Militia, in 2 vols 4to.
3. An Answer to the Provincial Letters. 4. A Voyage to the World of Descartes. 5. Letters on the doctrines of the Theorists, and on Probability. 6. New difficulties relating to the knowledge of Brutes: And, 7. A theological treatise on the Efficacy of Grace.

DANMONII, an ancient British nation, supposed to have inhabited that tract of country which is now called Cornwall and Devonshire, bounded on the south by the British Ocean, on the west by St George's channel, on the north by the Severn Sea, and on the east by the country of the Durotriges. Some other British tribes were also seated within these limits; as the Cossini and Oslidamnii, which were probably particular clans of the Danmonii; and, according to Mr Baxter, they were the keepers of their flocks and herds. As the several tribes of the Danmonii submitted without much resistance to the Romans, and never joined in any revolt against them, that people were under no necessity of building many forts, or keeping many garrisons in their country. This is the reason why so few Roman antiquities have been found in that country, and so little mention is made of it and its ancient inhabitants by Roman writers. Ptolemy names a few places, both on the sea-coasts and in the inland parts of this country, which were known to, and frequented, by the Romans. The most considerable of these places are the two famous promontories of Bolerium and Ocrinum, now the Landsend and the Lizard; and the towns of Isca Danmoniorum and Tamare, now Exeter and Saltash. As the Danmonii submitted so tamely to the Romans, they might perhaps permit them to live, for some time at least, under their own princes and their own laws; a privilege which we know they granted to some other British states. In the most perfect state of the Roman government in Britain, the country of the Danmonii made a part of the province called Flava Cæsariensis, and was governed by the president of that province. After the departure of the Romans, kingly government was immediately revived amongst the Danmonii in the person of Vortigern, who was perhaps descended from the race of their ancient princes, as his name signifies in the British language a chieftain or the head of a family.

DANTE (Aligheri), one of the first poets of Italy, was born at Florence in 1265, of an ancient and honourable family. Boccaccio, who lived in the same period, has left a very curious and entertaining treatise, on the life, the studies, and manners of this extraordinary poet, whom he regarded as his master, and for whose memory he professed the highest veneration. This biographer relates, that Dante, before he was nine years old, conceived a passion for the lady whom he has immortalized in his singular poem. Her age was near his own; and her name was Beatrice, the daughter of Folco Portinari, a noble citizen of Florence. The passion of Dante, however, like that of his successor Petrarch, seems to have been of the chaste and platonic kind, according to the account he has himself given of it, in one of his early productions, intitled *Vita Nuova*; a mixture of mysterious poetry and prose; in which he mentions both the origin of his affection and the death of his mistress, who, according to Boccaccio, died at the age of 24. The same author asserts, that Dante fell into a deep melancholy in con-

sequence of this event, from which his friends endeavoured to raise him, by persuading him to marriage. After some time he followed their advice, and repented it; for he unfortunately made choice of a lady who bore some resemblance to the celebrated Xantippe. The poet, not possessing the patience of Socrates, separated himself from her with such vehement expressions of dislike, that he never afterwards admitted her to his presence, though she had born him several children. In the early part of his life he gained some credit in a military character; distinguishing himself by his bravery in an action where the Florentines obtained a signal victory over the citizens of Arezzo. He became still more eminent by the acquisition of civil honours; and at the age of 35 he rose to be one of the chief magistrates of Florence, when that dignity was conferred by the suffrages of the people. From this exaltation the poet himself dated his principal misfortunes, as appears from the fragment of a letter quoted by Leonardo Bruni, one of his early biographers, where Dante speaks of his political failure with that liberal frankness which integrity inspires. Italy was at that time distracted by the contending factions of the Ghibellins and the Guelphs: the latter, among whom Dante took an active part, were again divided into the Blacks and the Whites. Dante, says Gravina, exerted all his influence to unite these inferior parties; but his efforts were ineffectual, and he had the misfortune to be unjustly persecuted by those of his own faction. A powerful citizen of Florence, named Corso Donati, had taken measures to terminate these intestine broils, by introducing Charles of Valois, brother to Philip the Fair King of France. Dante, with great vehemence, opposed this disgraceful project, and obtained the banishment of Donati and his partizans. The exiles applied to the pope (Boniface VIII.), and by his assistance succeeded in their design. Charles of Valois entered Florence in triumph, and those who had opposed his admission were banished in their turn. Dante had been dispatched to Rome as the ambassador of his party; and was returning, when he received intelligence of the revolution in his native city. His enemies, availing themselves of his absence, had procured an iniquitous sentence against him, by which he was condemned to banishment, and his possessions were confiscated. His two enthusiastic biographers Boccaccio and Manetti, express the warmest indignation against the injustice of his country. Dante, on receiving this intelligence, took refuge in Sienna, and afterwards in Arezzo, where many of his party were assembled. An attempt was made to surprise the city of Florence, by a small army which Dante is supposed to have attended: the design miscarried, and our poet is conjectured to have wandered to various parts of Italy, till he found a patron in the great Candella Scala, prince of Verona, whom he has celebrated in his poem. The high spirit of Dante was ill suited to courtly dependence; and he is said to have lost the favour of his Veronese patron by the rough frankness of his behaviour. From Verona he retired to France, according to Manetti; and Boccaccio affirms that he disputed in the theological schools of Paris with great reputation. Bayle questions his visiting Paris at this period of his life; and thinks it improbable, that a man, who had been one of the chief magistrates of Florence, should

Dante.

Dante.

should condescend to engage in the public squabbles of the Parisian theologists; but the spirit both of Dante and the times in which he lived sufficiently account for this exercise of his talents; and his residence in France at this season is confirmed by Boccacio, in his life of our poet, which Bayle seems to have had no opportunity of consulting.

The election of Henry count of Luxemburgh to the empire, in November 1308, afforded Dante a prospect of being restored to his native city, as he attached himself to the interest of the new emperor, in whose service he is supposed to have written his Latin treatise *De Monarchia*, in which he asserted the rights of the empire against the encroachments of the Papacy. In the year 1311, he instigated Henry to lay siege to Florence; in which enterprise, says one of the biographers, he did not appear in person, from motives of respect towards his native city. The emperor was repulsed by the Florentines; and his death, which happened in the succeeding year, deprived Dante of all hopes concerning re-establishment in Florence. After this disappointment, he is supposed to have passed some years in roving about Italy in a state of poverty and distress, till he found an honourable establishment at Ravenna, under the protection of Guido Novello da Polenta, the lord of that city, who received this illustrious exile with the most endearing liberality, continued to protect him through the few remaining years of his life, and extended his munificence to the ashes of the poet.

Eloquence was one of the many talents which Dante possessed in an eminent degree. On this account he is said to have been employed on fourteen different embassies in the course of his life, and to have succeeded in most of them. His patron Guido had occasion to try his abilities in a service of this nature, and dispatched him as his ambassador to negotiate a peace with the Venetians, who were preparing for hostilities against Ravenna. Manetti asserts that he was unable to procure a public audience at Venice, and returned to Ravenna by land, from his apprehensions of the Venetian fleet; when the fatigue of his journey, and the mortification of failing in his attempt to preserve his generous patron from the impending danger, threw him into a fever, which terminated in death on the 14th of September 1321. He died, however, in the palace of his friend; and the affectionate Guido paid the most tender regard to his memory. This magnificent patron (says Boccacio) commanded the body to be adorned with poetical ornaments, and, after being carried on a bier through the streets of Ravenna by the most illustrious citizens, to be deposited in a marble coffin. He pronounced himself the funeral oration, and expressed his design of erecting a splendid monument in honour of the deceased: a design which his subsequent misfortunes rendered him unable to accomplish. At his request, many epitaphs were written on the poet: the best of them (says Boccacio) by Giovanni del Virgilio of Bologna, a famous author of that time, and the intimate friend of Dante. Boccacio then cites a few Latin verses, not worth transcribing, six of which are quoted by Bayle as the composition of Dante himself, on the authority of Paul Jovius. In 1483 Bernardo Bembo, the father of the celebrated cardinal,

raised a handsome monument over the neglected ashes of the poet, with the following inscription:

Exigua tumuli Danthes hic forte jacebas
Squalenti nulli cognita paene situ;
At nunc marmoreo subnixus conderis arcu,
Omnibus et cultu splendidiore nites;
Nimirum Bembo, Musis incensus Etruscis,
Hoc tibi, quem in primis hae coluere, dedit.

Dante.

Before this period the Florentines had vainly endeavoured to obtain the bones of their great poet from the city of Ravenna. In the age of Leo X. they made a second attempt, by a solemn application to the pope for that purpose; and the great Michael Angelo, an enthusiastic admirer of Dante, very liberally offered to execute a magnificent monument to the poet. The hopes of the Florentines were again unsuccessful. The particulars of their singular petition may be found in the notes to Codivi's Life of Michael Angelo.

At what time, and in what place, he executed the great and singular work which has rendered him immortal, his numerous commentators seem unable to determine. Boccacio asserts, that he began it in his 35th year, and had finished seven cantos of his *Inferno* before his exile; that in the plunder of his house, on that event, the beginning of his poem was fortunately preserved, but remained for some time neglected, till its merit being accidentally discovered by an intelligent poet named Dino, it was sent to the marquis Marcello Malestina, an Italian nobleman, by whom Dante was then protected. The marquis restored these lost papers to the poet, and intreated him to proceed in a work which opened in so promising a manner. To this incident we are probably indebted for the poem of Dante, which he must have continued under all the disadvantages of an unfortunate and agitated life. It does not appear at what time he completed it; perhaps before he quitted Verona, as he dedicated the *Paradise* to his Veronese patron. The critics have variously accounted for his having called his poem *Comedia*. He gave it that title (said one of his sons), because it opens with distress and closes with felicity. The very high estimation in which this production was held by his country, appears from a singular institution. The republic of Florence, in the year 1373, assigned a public stipend to a person appointed to read lectures on the poem of Dante: Boccacio was the first person engaged in this office; but his death happening in two years after his appointment, his comment extended only to the seventeen first cantos of the *Inferno*. The critical dissertations that have been written on Dante are almost as numerous as those to which Homer has given birth; the Italian, like the Grecian bard, has been the subject of the highest panegyric, and of the grossest invective. Voltaire has spoken of him with that precipitate vivacity, which so frequently led that lively Frenchman to insult the reputation of the noblest writers. In one of his entertaining letters, he says to an Italian abbé, "Je fais grand cas du courage, avec lequel vous avez osé dire que Dante étoit un fou, et son ouvrage un monstre.—Le Dante pourra entrer dans les bibliothèques des curieux, mais il ne fera jamais lu." But more temperate and candid critics have not been wanting to display the merits of this original poet. Mr Warton has introduced into his last volume on English poetry,

Dante,
Dantzie.

poetry, a judicious and spirited summary of Dante's performance.

DANTE (John Baptist), a native of Perugia, an excellent mathematician, called the *new Dædalus*, for the wings he made himself, and with which he flew several times over the lake Thrásymenus. He fell in one of his enterprises, the iron work with which he managed one of his wings having failed; by which accident he broke his thigh: but it was set by the surgeons, and he was afterwards called to Venice to profess mathematics.

DANTZIC, the capital of Polish Prussia, standing on a branch of the Vistula, about four miles above where it falls into the Baltic; in E. Long. 18. 36. N. Lat. 54. 20. This city is famous in history on many accounts, particularly that of its being formerly at the head of the Hanseatic association, commonly called the *Hanse-towns*. It is large, beautiful, populous, and rich; its houses generally are five stories high; and many of its streets are planted with chestnut-trees. One of the suburbs is called *Scotland*: and the Scots have great privileges in consequence of their gallant defence of the town, under one of the family of Douglas, when it was besieged by the Poles. It is said there are upwards of 30,000 pedlars of that nation in Poland who travel on foot, and some with three, four, or five horses. In king Charles II's time they were about 53,000: in that reign Sir John Denham and Mr Killigrew were sent to take the number of them, and to tax them by the poll, with the king of Poland's licence; which having obtained, they brought home L. 10,000 Sterling, besides their charges in the journey. Dantzie has a fine harbour; and is still a most eminent commercial city, although it seems to be somewhat past its meridian glory, which was probably about the time that the president de Thou wrote his much esteemed *Historia sui Temporis*, wherein, under the year 1607, he so highly celebrates its commerce and grandeur. It is a republic, claiming a small adjacent territory about forty miles round it, which were under the protection of the king and the republic of Poland. Its magistracy, and the majority of its inhabitants, are Lutherans; although the Romanists and Calvinists be equally tolerated in it. It has 26 parishes, with many convents and hospitals. The inhabitants have been computed to amount to 200,000; but later computations fall very considerably short of it, as appears by its annual bill of mortality, exhibited by Dr Busching, who tells us, that in the year 1752, there died but 1846 persons. Its own shipping is numerous; but the foreign ships constantly resorting to it are more so, whereof 1014 arrived there in the year 1752; in which year also 1288 Polish vessels came down the Vistula chiefly laden with corn, for its matchless granaries; from whence that grain is distributed to many foreign nations, Poland being justly deemed the greatest magazine of corn in all Europe, and Dantzie the greatest port for distributing it every where: besides which, Dantzie exports great quantities of naval stores, and a vast variety of other articles. Dr Busching affirms, that it appears from ancient records, as early as the year 997, that Dantzie was a large commercial city, and not a village or inconsiderable town, as some pretend. The inhabitants of Dantzie have often changed their masters, and have sometimes been un-

der the protection of the English and Dutch; but generally have shown a great predilection for the kingdom and republic of Poland, as being less likely to rival them in their trade, or abridge them of their immunities, which reach even to the privilege of coining money. Though strongly fortified, and possessed of 150 large brass cannon, it could not, from its situation, stand a regular siege, being surrounded with eminences. In 1734, the inhabitants discovered a remarkable attachment and fidelity towards Stanislaus king of Poland, not only when his enemies, the Russians, were at their gates, but even in possession of the city. This city was exempted by the late king of Prussia from those claims which he made on the neighbouring countries; notwithstanding which, his Prussian majesty soon after thought proper to seize on the territories belonging to Dantzie, under pretence of their having been formerly part of Polish Prussia. He then proceeded to possess himself of the port-duties belonging to that city, and erected a custom-house in the harbour, where he laid arbitrary and insupportable duties upon goods exported or imported. To complete the system of oppression, custom-houses were erected at the very gates of Dantzie, so that no persons could go in or out of the town without being searched in the strictest manner. Such is the treatment which the city of Dantzie has received from the king of Prussia, though few cities have ever existed which have been comprehended in so many general and particular treaties, and whose rights and liberties have been so frequently secured, and guaranteed by so many great powers, and by such a long and regular succession of public acts, as that of Dantzie has been. In the year 1784, it was blockaded by his troops on various pretences; but by the interposition of the empress of Russia and of the king of Poland, they were withdrawn; and a compromise having taken place, the city was restored to its former immunities. Nevertheless, its trade has since been rather upon the decline, the merchants choosing to settle where their property may be more secure.

DANUBE, the largest and most considerable river in Europe, rising in the Black Forest, near Zunberg; and running N. E. through Swabia by Ulm, the capital of that country; then running E. through Baffaria and Austria, passes by Ratibon, Passau, Ens, and Vienna. It then enters Hungary, and runs S. E. from Presburg to Buda, and so on to Belgrade; after which it divides Bulgaria from Molachia and Moldavia, discharging itself by several channels into the Black Sea, in the province of Bessarabia. Towards the mouth, it was called the *Iller* by the ancients; and it is now said, that four of the mouths are choaked up with sand, and that there are only two remaining. It begins to be navigable for boats at Ulm, and receives several large rivers as it passes along. It is so deep between Buda and Belgrade, that the Turks and Christians have had men of war upon it; and yet it is not navigable to the Black Sea, on account of the cataraets. The Danube was generally supposed to be the northern boundary of the Roman empire in Europe. It was worshipped as a deity by the Scythians.

DAPHNE, a daughter of the river Peneus by the goddess Terra, of whom Apollo became enamoured. This passion had been raised by Cupid; with whom

Dantzie.
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Daphne.

Daphne.

whom Apollo, proud of his late conquest of the serpent Python, had disputed the power of his darts. Daphne heard with horror the addresses of the god, and endeavoured to remove herself from his importunities by flight. Apollo pursued her, and Daphne, fearful of being caught, intreated the assistance of the gods, who changed her into a laurel. Apollo crowned his head with the leaves of the laurel, and for ever ordered that that tree should be sacred to his divinity. Some say that Daphne was admired by Leucippus, son of CEnomaus king of Pisa, who to be in her company disguised his sex, and attended her in the woods in the habit of a huntress. Leucippus gained Daphne's esteem and love; but Apollo, who was his powerful rival, discovered his sex, and Leucippus was killed by the companions of Diana. Daphne was also the name of a daughter of Tiresias, priests in the temple of Delphi. She was consecrated to the service of Apollo by the Epigoni, or according to others by the goddess Tellus. She was called *Sibyl*, on account of the wildness of her looks and expressions when she delivered oracles. Her oracles were generally in verse; and Homer, according to some accounts, has introduced much of her poetry in his compositions.

DAPHNE (anc. geog.), a small village near to, or in the suburbs of, Antiochia of Seleucis in Syria; with a large grove, well watered with springs: In the middle of the grove stood the temple of Apollo and Diana. Its extent was 80 stadia or 10 miles; the distance from the city five miles: A place pleasant and agreeable, from the plenty of water and the temperature of the air, and its soft breathing breezes. The grove was of bay-trees, intermixed with cypresses: which last multiplied so fast, as to occupy the whole of it. Pompey gave some land for enlarging the grove. Antiochus Epiphanes built a very large temple of Daphnæus Apollo. The place at length became so infamous, that people of modesty and character avoided resorting thither; so that *Daphnici mores* became proverbial.

DAPHNE, (anc. geog.), a small district on the lake Samachonitis, in the Higher Galilee, very pleasant, and plentifully watered with springs, which feed the Lesh Jordan; whence its name seems to arise, probably in imitation of that near Antioch of Syria on the river Orontes.

DAPHNE, *Spurge-laurel*; a genus of the monogynia order, belonging to the octandria class of plants; and in the natural method ranking under the 31st order, *Veprecula*. There is no calyx; the corolla is quadrid and marcescent, inclosing the stamina. The fruit is a monospermous berry. There are 15 species; of which the following are the most remarkable.

1. Mezereum, the mezereon or spurge-olive, is a low deciduous shrub. It is a native of Germany, and has been discovered in this country in some woods near Andover in Hampshire. Of this elegant plant there are four varieties; 1. The white; 2. The pale-red; 3. The crimson; and, 4. The purple flowering.—Hanbury is very lavish of his praise of these shrubs. He says, "they have each every perfection to recommend them as flowering-shrubs. In the first place, they are of low growth, seldom arising to more than three or four feet in height, and therefore are proper even for the smallest gardens. In the next place, they

will be in bloom when few trees, especially of the shrubby tribe, present their honours. It will be in February, nay, sometimes in January; then will the twigs be garnished with flowers all around from one end to the other. Each twig has the appearance of a spike of flowers of the most consummate lustre; and as the leaves are not yet out, whether you behold this tree near or at a distance, it has a most enchanting appearance. But this is not all; the sense of smelling is peculiarly regaled by the flowers; their spicy sweetness is diffused around, and the air is perfumed with their odours to a considerable distance. Many flowers, deemed sweet, are not liked by all; but the agreeable inoffensive sweetness of the mezereon has ever delighted the sense of smelling, whilst the lustre of its blow has feasted the eye. Neither is this the only pleasure the tree bestows; for besides the beauty of the leaves, which come out after the flowers are fallen, and which are of a pleasant green colour and an oblong figure, it will be full of red berries in June, which will continue growing till the autumn. Of these berries the birds are very fond; so that whoever is delighted with those songsters, should have a quantity of them planted all over the outskirts of his wilderness quarters."

2. Gnidium, the flax-leaved daphne, is a low deciduous shrub; a native of Italy, Spain, and about Montpellier. This species seldom grows higher than three feet. The branches are very slender, and ornamented with narrow, spear-shaped, pointed leaves, much like those of the common flax. The flowers are produced in panicles at the ends of the branches; They are small, come out in June, but are rarely succeeded by seeds in England.

3. Cneorum, the spear-leaved daphne or cneorum, is a very low deciduous shrub; native of Switzerland, Hungary, the Alps and Pyrenean mountains. This rises with a shrubby, branching stalk, to about a foot or a foot and a half high. The leaves are narrow, spear-shaped, and grow irregularly on the branches. The flowers are produced in clusters at the ends of the little twigs: They make their appearance in March, are of a purple colour, and possessed of a fragrance little inferior to that of the mezereon; but they are seldom succeeded by seeds in England.

4. Tartonraira, the oval-leaved daphne or tartonraira, a very low deciduous shrub, is a native of France and Italy. This rises with a woody stalk to the height of about two feet. The branches are numerous, irregular, tough, and covered with a light-brown-coloured bark. The leaves are oval, very small, soft to the touch and shining. The flowers are produced in clusters from the sides of the stalks: They are white, come out in June, and are succeeded by roundish berries, which seldom ripen in England. This sort should have a dry soil and a warm situation.

5. Alpina, the alpine daphne or chamelæa, is a low deciduous shrub; native of the Alps, Geneva, Italy, and Austria. This will grow to the height of about a yard. The leaves are spear-shaped, obtuse, and hoary underneath. The flowers come out in clusters from the sides of the branches, and are very fragrant: They appear in March, and are succeeded by red berries, that ripen in September.

6. Thymelæa, the milkwort-leaved daphne or the thymelæa;

Daphne.

Daphne.

thymelæa; a low deciduous shrub, native of Spain and the south of France. The thymelæa will grow to the height of a yard. The stalks of this species are upright, branched, and covered with a light brown bark. The leaves are spear-shaped, smooth, and in some respect resemble those of milk-wort. The flowers are produced in clusters from the sides of the stalks: They are of a greenish colour, have no footstalks, appear in March, and are succeeded by small yellowish berries, which will be ripe in August. This sort requires a dry soil and a warm situation.

7. Villosa, the hairy-leaved daphne, a very low deciduous shrub, native of Spain and Portugal. The stalks are ligneous, about two feet high, and send forth branches alternately from the sides. The leaves are spear-shaped, plane, hairy on both sides, and grow on very short footstalks. The flowers have very narrow tubes, are small, and make no great show: they come out in June, and are not succeeded by ripe seeds in England. This shrub, in some situations, retains its leaves all winter in such beauty as to cause it to be ranked among the low-growing evergreens; but as in others it is sometimes shattered with the first black winds, it is left to the gardener whether to place this shrub among the deciduous trees or evergreens.

8. Laureola, the spurge laurel or evergreen daphne; a low evergreen shrub, common in some parts of this kingdom, also in Switzerland and France. This shrub seldom grows more than a yard or four feet high; it sends out many branches from the bottom, and these are covered with a smooth light brown bark that is very thick. The bark on the younger branches is smooth and green; and these are very closely garnished with leaves of a delightful strong lucid green colour. These leaves sit close to the branches, and are produced in such plenty, that they have the appearance, at a small distance, of clusters at the ends of the branches. They are spear-shaped, shining, smooth, and thick; their edges are entire. Hanbury extols this plant with a degree of enthusiasm; continuing, "and this is another excellent property of this tree, that it is thus possessed of such delightful leaves for its ornament. These leaves, when growing under the drip of trees, spread open, and exhibit their green pure and untarnished, in its natural colour; when planted singly in exposed places, they naturally turn back with a kind of twist, and the natural green of the leaf is often alloyed with a brownish tinge. This shrub is also valuable on account of its flowers; not because they make any great show, but from their fragrance, and the time they appear; for it will be in blow the beginning of January, and will continue so until the middle or latter end of April before the flowers fall off; during which time they never fail to diffuse a-broad their agreeable odours, which are refreshing and inoffensive. In the evening especially, they are more than commonly liberal; insomuch that a few plants will often perfume the whole end of a garden; and when this happens early, before many flowers appear, the unskilful in flowers, perceiving an uncommon fragrantcy, are at once struck with surprise, and immediately begin enquiring from whence it can proceed. Neither are its odours confined to a garden only; but when planted near windows, they will enter parlours, and ascend even into bed-chambers, to the great com-

fort of the possessor, and surprise of every fresh visitor." These flowers make but little show; for they are small, and of a greenish-yellow. They are produced amongst the leaves from the sides of the stalks, in small clusters, and will often be so hid by them, as to be unnoticed by any but the curious. They are succeeded by oval berries, which are first green, and afterwards black when ripe. These berries will be in such plenty as to be very ornamental; but will soon be eaten up by the birds; which is another good property of this tree, as it invites the different sorts of whistling birds to flock where it is planted in great plenty.

Propagation. The mezereon ripens its seeds with us, which may at any time be easily obtained, if they are secured from birds. Previous therefore to sowing, the healthiest and most thriving trees of the white, the pale, and the deep-red sorts, should be marked out, and as soon as the berries begin to alter from green, they must be covered with nets, to secure them from the birds, which would otherwise devour them all. The berries will be ripe in July; and due observance must be had to pick them up as they fall from the trees, and to keep the sorts separate. As soon as they are all fallen, or you have enough for your purpose, they may then be sown. The best soil for these plants is a good fat black earth, such as is found in the kitchen-gardens that have been well manured and managed for many years. In such soil as this they will not only come up better, but will grow to a greater height than in any other. No particular regard need be paid to the situation; for as this tree is a native of the northern parts of Europe, it will grow in a north border, and flourish there as well as in a south; nay, if there be any difference, the north border is more eligible than the south. The ground being made fine, and cleared of roots of all sorts, the seeds should be sown hardly half an inch deep. The mould being riddled over them that depth, let the beds be netted up, and they will want no other attention until the spring. These seeds will sometimes remain in the ground two years; but for the most part they come up the spring after sowing; and the seedlings will require no other care during the summer than weeding, and gentle watering in dry weather. After they have been in the seed-bed one year, the strongest may be drawn out, and planted in the nursery, to make room for the others; though, if they do not come up very close, it would be as well to let them remain in the seed-bed until the second autumn: when they should be taken up with care, and planted in beds at a foot asunder each way. This will be distance enough for these low-growing shrubs. October is the best month for planting them out finally; for although they will grow if removed any time between then and spring, yet that will certainly be a more proper season than when they are in full blow. Such is the culture of this shrub. The other species of this genus require a different management.

The spurge laurel is propagated by seeds, in the same manner as the common mezereon. The seeds must be preserved from the birds by nets, until they are ripe. Soon after, they must be sown as is directed for the mezereon. They will often be two years before they come up; during which time, and afterwards, they may have the same management as has been

Daphne.

Daphne.

been laid down for the common mezereon untill they be finally set out. This shrub will grow in almost any soil or situation, but flourishes most under the shade and drip of taller plants, giving a peculiar cheerfulness to the bottoms of groves and clumps in winter.

All the other sorts are with some difficulty propagated and retained. They will by no means bear removing, even when seedlings: and if ever this is attempted, not one in an hundred must be expected to grow. They are raised by seeds, which we receive from the places where they grow naturally; and he who is desirous of having these plants, must manage them in the following manner: Let a compost be prepared of these equal divisions: one-fourth part of lime-rubbish; one-fourth part of drift or sea sand; another of splinters of rocks, some broad and others smaller; and the other part of maiden earth from a rich pasture. Let these be mixed altogether, and filled into largish pots. In each of these pots put a seed or two, about half an inch deep, in the finest of the mould. We receive the seeds in the spring; so that there is little hopes of their coming up until the spring following: Let, therefore, the pots be set in the shade all the summer, and in the autumn removed into a warm situation, where they may enjoy every influence of the sun's rays all winter. In March, let them be plunged into a moderate hot-bed, and the plants will soon after appear. This bed will cause them to be strong plants, by the autumn; and when all danger of frost is over, they may be uncovered wholly, and permitted to enjoy the open air. In the autumn they should be removed into the green-house, or set under an hot-bed frame all winter; and in spring they should be placed where they are to continue, moulding them up the height of the pot; the pots being sufficiently broken to make way for their roots as they shoot, and then left to nature.—The situation of the four tenderer sorts must be well sheltered; and if it be naturally rocky, sandy, and dry, it will be the better; for in the places where they grow naturally, they strike into the crevices of rocks, and flourish where there is hardly any appearance of soil.

This is one method of obtaining these shrubs. Another way is, by sowing the seeds in the places where they are to remain. The situation and nature of the soil should be as near that above described as possible; and the mould should be made fine in some places, and a seed or two sown in each. After this, pegs should be stuck down on each side of them, to direct to the places where they are sown. The exactest care must be observed, all summer, to pull up the weeds as often as they appear; for if they are permitted to get strong, and have great roots, they will pull up the seeds with them. In the spring following, if the seeds are good, the plants will appear. During the summer, they should be watered in dry weather; and, for the first winter or two, should have some furze-bushes pricked all around them, at a proper distance, which will break the keen edge of the frosty winds, and preserve the young plants until they are strong enough to defend themselves.

The cneorum and the alpine chamelæa are very hardy, and will grow in the coldest situation; but the other sorts should have a warm soil, and a well-sheltered

site, or they will be subject to be destroyed in bad weather.

Medicinal properties. The root of the mezereon was long used in the Lisbon diet-drink for several complaints, particularly nodes and other symptoms resisting the use of mercury; but with the composition of this article we were unacquainted, till an account of it was published in the Edinburgh Physical Essays, by Dr Donald Monro of London. On chewing it a little, it proves very pungent, and its acrimony is accumulated about the fauces, and is very durable. It is employed chiefly under the form of decoction; and it enters the decoctum sarsaparillæ compositum of the London college; but it has also been used in powder combined with some inactive one, as that of liquorice root. It is apt to occasion vomiting and purging; so must be begun in grain-doses, and gradually increased. It is often usefully combined with mercury. The bark of the root contains most acrimony, though some prefer the woody part. Mezereon has also been used with good effects in tumours and cutaneous eruptions not venereal. The whole plant is very corrosive. Six of the berries will kill a wolf. A woman gave 12 grains of the berries to her daughter who had a quartan ague; she vomited blood, and died immediately.

DAPHNEPHORIA, a festival in honour of Apollo, celebrated every ninth year by the Bœotians. It was then usual to adorn an olive bough with garlands of laurel and other flowers, and placed on the top a brazen globe, on which were suspended smaller ones. In the middle was placed a number of crowns, and a globe of inferior size, and the bottom was adorned with a saffron-coloured garment. The globe on the top represented the sun or Apollo. That in the middle was an emblem of the moon, and the other of the stars. The crowns, which were 65 in number, represented the sun's annual revolution. This bough was carried in solemn procession by a beautiful youth of an illustrious family, and whose parents were both living. The youth was dressed in rich garments which reached to the ground, his hair hung loose and dishevelled, his head was covered with a golden crown, and he wore on his feet shoes called *Iphicratidæ*, from Iphicrates an Athenian, who first invented them. He was called *Δαφνηφόρος*, laurel-bearer; and at the time he executed the office of priest of Apollo. He was preceded by one of his nearest relations, bearing a rod adorned with garlands, and behind him followed a train of virgins with branches in their hands. In this order the procession advanced as far as the temple of Apollo, surnamed Ismenius, where supplicatory hymns were sung to the god.—This festival owes its origin to the following circumstance; When an oracle advised the Ætolians, who inhabited Arne and the adjacent country, to abandon their antient possessions; and go in quest of a settlement, they invaded the Theban territories, which at that time were pillaged by an army of Pelasgians. As the celebration of Apollo's festival was near, both nations, who religiously observed it, laid aside all hostilities, and according to custom cut down laurel boughs from mount Helicon, and in the neighbourhood of the river Melas, and walked in procession in honour of the divinity. The day that this solemnity was observed, Polematas, the general of the Bœotian army saw a youth in a dream, that presented him with a complete suit of armour, and commanded

Daphne,
Daphne-
phoria.

Dapifer
||
Dardani-
um.

commanded the Boeotians to offer solemn prayers to Apollo, and walk in procession with laurel boughs in their hands every ninth year. Three days after this dream, the Boeotian general made a sally and cut off the greatest part of the besiegers, who were compelled by this blow to relinquish their enterprise. Polematas immediately instituted a novennial festival to the god, who seemed to be the patron of the Boeotians.

DAPIFER, the dignity or office of grand-master of a prince's household. This title was given by the Emperor of Constantinople to the Czar of Russia as a testimony of favour. In France the like officer was instituted by Charlemagne, under the title of *dapiferat*; and the dignity of dapifer is still subsisting in Germany, the elector of Bavaria assuming the title of *arch-dapifer of the empire*, whose office is, at the coronation of the emperor, to carry the first dish of meat to table on horseback.

DAPPLE-BAY, in the manege: When bay horses have marks of a dark bay, they are called *dapple-bays*.

DAPPLE-Blacks: When a black horse has got spots or marks more black or shining than the rest of his skin, he is called a *dapple-black*.

DARANTASIA, (anc. geog.), called *Forum Claudii*, by the Romans; a town of the Centrones in Gallia Narbonensis, situated between Lemincum and Augusta Prætoria. Now *Mousters*, and *Mousters en Tarentaise*, in Savoy.

DARAPTI, among logicians, one of the modes of syllogisms of the third figure, whose premises are universal affirmatives, and the conclusion is a particular affirmative: thus,

DAR- Every body is divisible;

AP- Every body is a substance;

TI, Therefore, some substance is divisible.

DARDA, a town and fort of Lower Hungary, built by the Turks in 1686, and taken by the Imperialists the next year, in whose hands it remains. It is seated on the river Draw, 10 miles from its confluence with the Danube, and at the end of the bridge of Esfack. E. Long. 19. 10. N. Lat. 45. 45.

DARDANELLES, two ancient and strong castles of Turkey, one of which is in Romania, and the other in Natolia, on each side the canal formerly called the *Hellepont*. This keeps up a communication with the Archipelago, and the Propontis or Sea of Marmora. The mouth of the canal is four miles and a half over; and the castles were built in 1659, to secure the Turkish fleet from the insults of the Venetians. The ships that come from Constantinople are searched at the castle on the side of Natolia, to see what they have on board.

DARDANIA, (anc. geog.), a district of Moesia Superior to the south. Now the south part of Servia, towards the confines of Macedonia and Illyricum. *Dardani* was the name of the people, who seem to have been descendants of the *Dardani* of Troas. Also a small district of Troas, along the Hellepont, (Mela, Virgil,) —And the ancient name of *Samothracia*, (Pliny); from *Dardanus*, who removed thither.

DARDANIUM PROMONTORIUM, (Pliny); *Dardanis*, (Strabo): A promontory of Troas, near Abydos, running out into the Hellepont; with a cognominal town at it, called also *Dardanus* and *Dardanum*: All which give name to the *Dardanelles*.

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DARDANUS, a son of Jupiter and Electra, who, after the death of his brother Jasion, left Samothrace his country, and passed into Asia Minor, where he married Batia, the daughter of Teucer king of Teucra. After the death of his father-in-law he ascended the throne, and reigned 62 years. He built the city of Dardania, and was reckoned the founder of the kingdom of Troy. He was succeeded by Erichthonius. According to some, Corybas, his nephew, accompanied him to Teucra, where he introduced the worship of Cybele. Dardanus taught his subjects to worship Minerva, and he gave them two statues of the goddess, one of which is well known by the name of *Palladium*. According to Virgil, Dardanus was an Italian by origin.

DARE, in ichthyology, the same with dace. See DACE.

DARES, a Phrygian, who lived during the Trojan war, in which he was engaged, and of which he wrote the history in Greek. This history was extant in the age of Ælian; the Latin translation, now extant, is universally believed to be spurious, though it is attributed by some to Cornelius Nepos. This translation first made its appearance A. D. 1477, at Milan. Homer speaks of him, Il. 5. v. 10. and 27.

DARIC, in antiquity, a famous piece of gold, first coined by Darius the Mede about 538 years before Christ; probably during his stay at Babylon, out of the vast quantity of gold which had been accumulated in the treasury. From thence it was dispersed over the east, and also into Greece; so that the Persian daric, which was also called *stater*, was the gold coin best known in Athens in ancient times. According to Dr Bernard, it weighed two grains more than one of our guineas; but as it was very fine, and contained little alloy, it may be reckoned worth about 25s. of our money. Plutarch informs us, that the darics were stamped on one side with an archer clothed in a long robe, and crowned with a spiked crown, holding a bow in his left hand and an arrow in his right; and on the other side with the effigies of Darius. All the other pieces of gold of the same weight and value that were coined of the succeeding kings, both of the Persian and Macedonian race, were called *darics*, from Darius, in whose reign this coin commenced. Of these there were whole darics and half darics; and they are called in those parts of Scripture written after the Babylonish captivity, *adarkonim*; and by the Talmudists, *darkenoth*. Greaves says that the daric is still found in Persia; but it is certainly very scarce, and perhaps of doubtful antiquity.

DARIEN, or the Isthmus of Panama, is a province between South and North America, being a narrow isthmus, or neck of land, which joins them together. It is bounded on the north by the North Sea, on the south by the South Sea, on the east by the gulph or river of Darien, and on the west by another part of the South Sea and the province of Veragua. It lies in the form of a bow, or crescent, about the great bay of Panama in the South Sea; and is 500 miles in length and 60 in breadth. This province is not the richest, but is of the greatest importance to Spain, and has been the scene of more actions than any other in America. The wealth of Peru is brought hither, and from hence exported to Europe. This has induced many enterprising people to make attempts on Pa-

nama,

Darien. nama, Porto-Bello, and other towns of this province, in hopes of obtaining a rich booty.

The Scotch got possession of part of this province in 1699, and attempted to form an establishment, which would have proved one of the most useful and important that ever was projected. Of the rise, progress, and catastrophe, of this well-imagined, but ill-fated, undertaking, Sir John Dalrymple, in the 2d volume of his *Memoirs of Great Britain and Ireland*, has given a very interesting account, authenticated in every particular by unquestionable documents. The projector and leader of the Darien expedition was a clergyman of the name of *Paterfon*; who having a violent propensity to see foreign countries, he made his profession the instrument of indulging it, by going to the new western world, under pretence of converting the Indians to the religion of the old. In his courses there, he became acquainted with Capt. Dampier and Mr Waffer, who afterwards published, the one his *Voyages* and the other his *Travels*, in the region where the separation is narrowest between the Atlantic and the South Seas; and both of whom, particularly the first, appear by their books to have been men of considerable observation. But he got much more knowledge from men who could neither write nor read, by cultivating the acquaintance of some of the old Buccaneers, who, after surviving their glories and their crimes, still, in the extremity of age and misfortune, recounted with transport the ease with which they had passed and repassed from the one sea to the other, sometimes in hundreds together, and driving strings of mules before them loaded with the plunder of friends and of foes. Paterfon having examined the places, satisfied himself, that on the Isthmus Darien there was a tract of country running across from the Atlantic to the South Sea, which the Spaniards had never possessed, and inhabited by a people continually at war with them; that along the coast, on the Atlantic side, there lay a string of islands called the *Sambaloes*, uninhabited, and full of natural strength and forests, from which last circumstance one of them was called the *island of the Pines*; that the seas there were filled with turtle and the manatee or sea-cow; that mid-way between Porto-Bello and Carthagena, but near 50 leagues distant from either, at a place called *Atta*, in the mouth of the river of Darien, there was a natural harbour, capable of receiving the greatest fleets, and defended from storms by other islands which covered the mouth of it, and from enemies by a promontory which commanded the passage, and by hidden rocks in the passage itself; that on the other side of the isthmus, and in the same tract of country, there were natural harbours, equally capacious and well defended; that the two seas were connected by a ridge of hills, which, by their height, created a temperate climate in the midst of the most sultry latitudes, and were sheltered by forests, not yet rendered damp by them, because the trees grew at a distance from each other, having very little under-wood; that, contrary to the barren nature of hilly countries, the soil was of a black mould two or three feet deep, and producing spontaneously the fine tropical fruits and plants, and roots and herbs; that roads could be made with ease along the ridge, by which mules, and even carriages, might pass from the one sea to the other in the space

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of a day; and consequently this passage seemed to be pointed out by the finger of nature, as a common center, to connect together the trade and intercourse of the universe.

Paterfon knew that ships which stretch in a straight line from one point to another, and with one wind, run less risks, and require fewer hands, than ships which pass through many latitudes, turn with many coasts, and require many winds; in evidence of which, vessels of seven or eight hundred tons burden are often to be found in the South Seas, navigated by no more than eight or ten hands, because these hands have little else to do than set their sails when they begin their voyage, and to take them in when they end it; that as soon as ships from Britain got so far south as to reach the trade-wind, which never varies, that wind would carry them to Darien, and the same wind would carry ships from the bay of Panama, on the opposite side of the isthmus, to the East-Indies; that as soon as ships coming from the East-Indies to the bay of Panama got so far north as the latitude of 40, to reach the westerly winds, which, about that latitude, blow almost as regularly from the west as the trade winds do from the east, these winds would carry them, in the track of the Spanish Acapulco ships, to the coast of Mexico; from whence the land-wind, which blows for ever from the north to the south, would carry them along the coast of Mexico into the bay of Panama. So that in going from Britain, ships would encounter no uncertain winds, except during their passage south into the latitude of the trade wind; in coming from India to the bay of Panama, no uncertain winds, except in their passage north to the latitude of the westerly winds; and in going from the other side of the isthmus to the east, no uncertain wind whatsoever. —Gold was seen by Paterfon in some places of the isthmus; and hence an island on the Atlantic side was called the *Golden island*, and a river on the side to the South Sea was called the *Golden River*; but these were objects which he regarded not at that time, because far greater were in his eye; the removing of distances, the drawing nations nearer to each other, the preservation of the valuable lives of seamen, and the saving in freight, so important to merchants, and in time so important to them, and to an animal whose life is of so short duration as that of man.

By this obscure Scotsman, a project was formed to settle, on this neglected spot, a great and powerful colony; not as other colonies have for the most part been settled, by chance, and unprotected by the country from whence they went; but by system, upon foresight, and to receive the ample protection of those governments to whom he was to offer his project. And certainly no greater idea has been formed since the time of Columbus.

Paterfon's original intention was to offer his project to England, as the country which had most interest in it, not only from the benefit common to all nations, of shortening the length of voyages to the East Indies, but by the effect which it would have had to connect the interests of her European, West Indian, American, African, and East Indian trade. But Paterfon having few acquaintance, and no protection in London, thought of drawing the public eye upon him, and ingratiating

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himself with monied men, and with great men, by assisting them to model a project, which was at that time in embryo, for erecting the Bank of England. But that happened to him which has happened to many in his situation: the persons to whom he applied made use of his ideas, took the honour of them to themselves, were civil to him for a while, and neglected him afterwards. He therefore communicated his project of a colony only to a few persons in London, and these few discouraged him.

He next made offer of his project to the Dutch, the Hamburgers, and the Elector of Brandenburg; because, by means of the passage of the Rhine and Elbe through their states, he thought, that the great additional quantities of East Indian and American goods, which his colony would bring into Europe, would be distributed through Germany. The Dutch and Hamburg merchants, who had most interest in the subject of his visit, heard him with indifference: The Elector, who had very little interest in it, received him with honour and kindness. But court arts and false reports lost him even that prince's favour.

Paterfon, on his return to London, formed a friendship with Mr Fletcher of Salton, whose mind was inflamed with the love of public good, and all of whose ideas to procure it had a sublimity in them. Fletcher brought Paterfon down to Scotland with him, presented him to the Marquis of Tweeddale, then Minister for Scotland; and then, with that power, which a vehement spirit always possesses over a diffident one, persuaded the Marquis, by arguments of public good and the honour which would redound to his administration, to adopt the project. Lord Stair and Mr Johnston, the two secretaries of state, patronised those abilities in Paterfon which they possessed in themselves: and the Lord Advocate, Sir James Stuart, the same man who had adjusted the Prince of Orange's declaration at the Revolution, whose son was married to a niece of Lord Stair, went naturally along with his connections. These persons, in June 1695, procured a statute from parliament, and afterwards a charter from the crown in terms of it, for creating a trading company to Africa and the new world, with power to plant colonies and build forts, with consent of the inhabitants, in places not possessed by other European nations.

Paterfon, now finding the ground firm under him, and that he was supported by almost all the power and talents of his country, the character of Fletcher, and the sanction of an act of parliament and royal charter, threw his project boldly upon the public, and opened a subscription for a company. The frenzy of the Scots nation to sign the solemn league and covenant, never exceeded the rapidity with which they ran to subscribe to the Darien Company. The nobility, the gentry, the merchants, the people, the royal burghs without the exception of one, most of the other public bodies, subscribed. Young women threw their little fortunes into the stock; widows sold their jointures to get the command of money for the same purpose. Almost in an instant, L.400,000 were subscribed in Scotland, altho' it be now known, that there was not at that time above L.800,000 of cash in the kingdom. The famous Mr Law, then a youth, afterwards confessed, that the facility with which he saw the passion of speculation com-

municate itself from all to all, satisfied him of the possibility of producing the same effect from the same cause, but upon a larger scale, when the Duke of Orleans, in the year of the Mississippi, engaged him against his will to turn his bank into a bubble. Paterfon's project, which had been received by strangers with fears when opened to them in private, filled them with hopes when it came to them upon the wings of public fame: For Colonel Erskine, son to Lord Cardross, and Mr Haldane of Gleneagles, the one a generous branch of a generous stem, and the other a country gentleman of fortune and character, having been deputed to receive subscriptions in England and on the continent, the English subscribed L.300,000, and the Dutch and Hamburgers L.200,000 more.

In the mean time the jealousy of trade (continues our author), which has done more mischief to the trade of England than all other causes put together, created an alarm in England; and the Houses of Lords and Commons, without previous inquiry or reflection, on the 13th of December 1695, concurred in a joint address to the King, against the establishment of the Darien Company, as detrimental to the interest of the East India Company. Soon after, the Commons impeached some of their own countrymen for being instrumental in erecting the company; and also some of the Scots nation, one of whom was a peer, Lord Belhaven; that is to say, they arraigned the subjects of another country, for making use of the laws of their own. Among 600 legislators, not one had the happy ray of genius to propose a committee of both parliaments, to inquire into the principles and consequences of the establishment; and if these should, upon inquiry, be found, that the benefit of it should be communicated, by a participation of rights, to both nations. The King's answer was, "That he had been ill advised in Scotland." He soon after changed his Scottish ministers, and sent orders to his resident at Hamburg to present a memorial to the senate, in which he disowned the company, and warned them against all connections with it. The senate sent the memorial to the assembly of merchants, who returned it with the following spirited answer: "We look upon it as a very strange thing, that the King of Britain should offer to hinder us, who are a free people, to trade with whom we please; but are amazed to think that he would hinder us from joining with his own subjects in Scotland, to whom he had lately given such large privileges, by so solemn an act of parliament." But merchants, though mighty prone to passion, are easily intimidated. The Dutch, Hamburg, and London merchants withdrew their subscriptions.

The Scots, not discouraged, were rather animated by this oppression; for they converted it into a proof of the envy of the English, and of their consciousness of the great advantages which were to flow to Scotland from the colony. The company proceeded to build six ships in Holland, from 36 to 60 guns, and they engaged 1200 men for the colony; among whom were younger sons of many of the noble and most ancient families of Scotland, and 60 officers who had been disbanded at the peace, who carried with them such of their private men generally raised on their own, or the estates of their relations, as they knew to be faithful and brave; and most of those were Highlanders. The

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Scots parliament, on the 5th August 1698, unanimously addressed the King to support the company. The Lord President Sir Hugh Dalrymple, brother to Lord Stair, and head of the bench, and the Lord Advocate Sir James Stuart, head of the bar, jointly drew memorials to the King, able in point of argument, information, and arrangement; in which they defended the rights of the company upon the principles of constitutional and of public law. And neighbouring nations, with a mixture of surprise and respect, saw the poorest kingdom of Europe sending forth the most gallant and the most numerous colony that had ever gone from the old to the new world.

On the 26th day of July of the year 1698, the whole city of Edinburgh poured down upon Leith, to see the colony depart, amidst the tears, and prayers and praises of relations and friends, and of their countrymen. Many seamen and soldiers, whose services had been refused, because more had offered themselves than were needed, were found hid in the ships, and, when ordered ashore, clung to the ropes and timbers, imploring to go without reward with their companions. Twelve hundred men sailed in five stout ships, and arrived at Darien in two months, with the loss of only 15 of their people. At that time it was in their power, most of whom were well born, and all of them hardily bred, and inured to the fatigues and dangers of the late war, to have gone from the northmost part of Mexico to the southmost of Chili, and to have overturned the whole empire of Spain in the South Seas: But modest, respecting their own and their country's character, and afraid of being accused that they had plunder, and not a settlement, in view, they began with purchasing lands from the natives, and sending messages of amity to the Spanish governors within their reach: and then fixed their station at Acta, calling it *New St Andrew*, from the name of the tutelar saint of Scotland, and the country itself *New Caledonia*. One of the sides of the harbour being formed by a long narrow neck of land which ran into the sea, they cut it across so as to join the ocean and the harbour. Within this defence they erected their fort, planting upon it 50 pieces of cannon. On the other side of the harbour there was a mountain a mile high, on which they placed a watch-house, which, in the rarified air within the tropics, so favourable for vision, gave them an immense range of prospect to prevent all surprise. To this place, it was observed that the Highlanders often repaired, to enjoy a cool air, and to talk of their friends they had left behind in their hills; friends whose minds were as high as their mountains. The first public act of the colony was to publish a declaration of freedom of trade and religion to all nations. This luminous idea originated with Paterfon.

But the Dutch East India Company having pressed the king, in concurrence with his English subjects, to prevent the settlement at Darien, orders had been sent from England to the governors of the West Indian and American colonies, to issue proclamations against giving assistance, or even to hold correspondence with the colony; and these were more or less harshly expressed, according to the tempers of the different governors. The Scots, trusting to far different treatment, and to the supplies which they expected from those colonies, had not brought provisions enough

with them; they fell into diseases from bad food and from want of food. But the more generous savages, by hunting and fishing for them, gave them that relief which fellow Britons refused. They lingered eight months, awaiting, but in vain, for assistance from Scotland; and almost all of them either died out or quitted the settlement. Paterfon, who had been the first that entered the ship at Leith, was the last who went on board at Darien.

During the space of two years, while the establishment of this colony had been in agitation, Spain had made no complaint to England or Scotland against it. The Darien council even averred in their papers (which are in the Advocates Library), that the right of the company was debated before the king, in presence of the Spanish ambassador, before the colony left Scotland. But now, on the 3d of May 1698, the Spanish ambassador at London presented a memorial to the king, which complained of the settlement at Darien as an incroachment on the rights of his master.

The Scots, ignorant of the misfortunes of their colony, but provoked at this memorial, sent out another colony soon after of 1300 men, to support an establishment which was now no more. But this last expedition having been more hastily prepared than the first, was unlucky in its passage. One of the ships was lost at sea, many men died on ship board, and the rest arrived at different times, broken in their health and dispirited, when they heard the fate of those who had gone before them.—Added to the misfortunes of the first colony, the second had a misfortune peculiar to itself: The General Assembly of the Church of Scotland sent out four ministers, with orders "to take charge of the souls of the colony, and to erect a presbytery, with a moderator, clerk, and record of proceedings; to appoint ruling elders, deacons, overseers of the manners of the people, and assistants in the exercise of church discipline and government, and to hold regular kirk-sessions." When they arrived, the officers and gentlemen were occupied in building houses for themselves with their own hands, because there was no help to be got from others; yet the four ministers complained grievously that the council did not order houses to be immediately built for their accommodation. They had not had the precaution to bring with them letters of recommendation from the directors at home to the council abroad. On these accounts, not meeting with all the attention they expected from the higher, they paid court to the inferior ranks of the colonists, and by that means threw divisions into the colony. They exhausted the spirits of the people, by requiring their attendance at sermon four or five hours at a stretch, relieving each other by preaching alternately, but allowing no relief to their hearers. The employment of one of the days set aside for religious exercise, which was a Wednesday, they divided into three parts, thanksgiving, humiliation, and supplication, in which three ministers followed each other. And as the service of the church of Scotland consists of a lecture with a comment, a sermon, two prayers, three psalms, and a blessing, the work of that day, upon an average of the length of the service of that age, could not take up less than twelve hours: during which space of time the colony was collected, and kept close together in the guard-room, which was used as

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a church, in a tropical climate, and in a sickly season. They presented a paper to the council, and made it public, requiring them to set aside a day for a solemn fasting and humiliation, and containing their reasons for their requisition; in which, under pretence of enumerating the sins of the people, they poured abuse on their rulers. They damped the courage of the people, by continually presenting hell to them as the termination of life to most men, because most men are sinners. Carrying the presbyterian doctrine of predestination to extremes, they stopped all exertions, by showing that the consequence of them depended not on those by whom they were made. They converted the numberless accidents to which soldiers and seamen are exposed, into immediate judgments of God against their sins. And having resolved to quit the settlement, they, in excuse for their doing so, wrote bitter letters to the General Assembly against the characters of the colonists, and the advantages of the colony itself.

One of them, in a kind of history of the colony which he published, with a savage triumph exulted over the misfortunes of his countrymen in the following words:—"They were such a rude company, that I believe Sodom never declared such impudence in sinning as they. An observant eye might see, that they were running the way they went; hell and judgment was to be seen upon them, and in them, before the time: Their cup was full; it could hold no more: They were ripe; they must be cut down with the sickle of the wrath of God."

The last party that joined the second colony at Darien, after it had been three months settled, was Captain Campbell of Finab, with a company of the people of his own estate, whom he had commanded in Flanders, and whom he carried to Darien in his own ship. On their arrival at New St Andrew, they found intelligence had been lately received, that a Spanish force of 1600 men, which had been brought from the coast of the South Sea, lay encamped at Tubucantee, waiting there till a Spanish squadron of eleven ships which was expected should arrive, when they were jointly to attack the fort. The military command was offered to Captain Campbell, in compliment to his reputation and to his birth, who was descended from the families of Breadalbane and Athole. In order to prevent a joint attack, he resolved to attack first; and therefore, on the second day after his arrival, he marched with 200 men to Tubucantee, before his arrival was known to the enemy, stormed the camp in the night-time, dissipated the Spanish force with much slaughter, and returned to the fort the fifth day: But he found the Spanish ships before the harbour, their troops landed, and almost all hope of help or provision cut off; yet he stood a siege near six weeks, till almost all the officers were dead, the enemy by their approaches had cut off his wells, and his balls were so far expended, that he was obliged to melt the pewter dishes of the garrison into balls. The garrison then capitulated, and obtained not only the common honours of war and security for the property of the company, but, as if they had been conquerors, exacted hostages for performance of the conditions. Captain Campbell alone desired to be excepted from the capitulation, saying, he was sure the Spaniards could not forgive him the mischief which he so lately had done them. The brave, by their cou-

rage, often escape that death which they seem to provoke: Captain Campbell made his escape in his vessel, and, stopping nowhere, arrived safely at New York, and from thence to Scotland, where the company presented him with a gold medal, in which his virtue was commemorated, to inflame his family with the love of heroic actions. And the Lord Lyon King at Arms, whose office it is in Scotland (and such offices should be every where) to confer badges of distinction according to the rules of heraldry upon honourable actions, gave him a Highlander and an Indian for supporters to his coat of arms.

A harder fate attended those whom Captain Campbell left at Darien. They were so weak in their health as not to be able to weigh up the anchors of the Rising Sun, one of their ships, which carried 60 guns: But the generous Spaniards assisted them. In going out of the harbour she ran aground: The prey was tempting; and to obtain it, the Spaniards had only to stand by and look on: but showed that mercy to the Scots in distress, which one of the countrymen of those Scots, General Elliot, returned to the posterity of the Spaniards at the end of the late conflagration at the siege of Gibraltar. The Darien ships being leaky and weakly manned, were obliged in their voyage to take shelter in different ports belonging to Spain and England. The Spaniards in the new world showed them kindness; the English governments showed them none; and in one place one of their ships was seized and detained. Of these only Captain Campbell's ship and another small one were saved: The Royal Sun was lost on the bar of Charlestown; and of the colony, not more than 30, saved from war, shipwreck, or disease, ever saw their country again.

Paterfon, who had stood the blow, could not stand the reflection of misfortune. He was seized with a lunacy in his passage home after the ruin of the first colony; but he recovered in his own country, where his spirit, still ardent and unbroke, presented a new plan to the company, founded on the idea of King William, that England should have the joint dominion of the settlement with Scotland.

He survived many years in Scotland, pitied, respected, but neglected. After the union of the two kingdoms, he claimed reparation of his losses from the equivalent-money given by England to the Darien Company, but got nothing; because a grant to him from a public fund would have been only an act of humanity, not a political job.

Thus ended the colony of Darien. Men look into the works of poets for subjects of satire; but they are more often to be found in the records of history. The application of the Dutch to King William against the Darien Company, affords the surest of all proofs, that it was the interest of the British islands to support it. England, by the imprudence of ruining that settlement, lost the opportunity of gaining and continuing to herself the greatest commercial empire that probably ever will be upon earth. Had she treated with Scotland, in the hour of the distress of the company, for a joint possession of the settlement, or adopted the union of the kingdoms, which the sovereign of both proposed to them, that possession could certainly have been obtained. Had she treated with Spain to relinquish an imaginary right, or at least to give a passage across

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across the isthmus, upon receiving duties so high as to overbalance all the chance of loss by a contraband trade, she had probably obtained either the one or the other. Had she broke with Spain for the sake of gaining by force one of those favours, she would have lost far less than she afterwards did by carrying a war into that country for many years, to force a king upon the Spaniards against their will. Even a rupture with Spain for Darien, if it had proved successful, would have knit the two nations together by the most solid of ties, their mutual interest: for the English must then have depended upon Spain for the safety of their caravans by land, and the Spaniards upon England for the safety of their fleets by sea. Spain and England would have been bound together as Portugal and England have long been; and the Spanish treasures have failed, under the wings of English navies, from the Spanish main to Cadiz, in the same manner as the treasures of Portugal have failed under the same protection, sacred and untouched, from the Brazils to Lisbon.

It has been made a question, whether King William behaved with his ordinary sincerity and steadiness, in the assurances of favour which he gave more than once to the company during their distresses. The following anecdote makes it probable, that there was a struggle in his breast between the part which he was obliged to act to please his English and Dutch at the expence of his Scots subjects and his own feelings. A provision ship of the first colony, in which were 30 gentlemen passengers, and some of them of noble birth, having been shipwrecked at Carthage, the Spaniards believing, or pretending to believe, that they were smugglers, cast them into a dungeon, and threatened them with death. The company deputed Lord Basil Hamilton from Scotland to implore King William's protection for the prisoners. The king at first refused to see him, because he had not appeared at court when he was last in London. But when this difficulty was removed by explanation, an expression fell from the king, which showed his sense of the generous conduct of another, although influenced by the English and Dutch East India Companies, he could not resolve to imitate it in his own. For Lord Basil's audience having been put off from time to time, but at last fixed to be in the council-chamber after a council was over, the king, who had forgot the appointment, was passing into another room, when Lord Basil placed himself in the passage and said, "That he came commissioned by a great body of his majesty's subjects to lay their misfortunes at his feet; that he had a right to be heard, and would be heard." The king returned, listened with patience, gave instant orders to apply to Spain for redress; and then turning to those near him, said, "This young man is too bold, if any man can be too bold in his country's cause." I had this anecdote from the present Earl of Selkirk, grandson to Lord Basil.

King William's desertion of a company erected upon the faith of his own charter, and the English oppressions of it, were the reasons why so many of the Scots, during four successive reigns, disliked the cause of the Revolution and of the Union. And that dislike, joined to English discontents, brought upon both countries two rebellions, the expenditure of many millions of money, and (which is a far greater loss) the downfall of many of their noblest and most ancient fami-

lies.—*Sir John Dalrymple's Memoirs of Great Britain and Ireland*, vol. ii.

DARII, in logic, one of the modes of syllogism of the first figure, wherein the major proposition is an universal affirmative, and the minor and conclusion particular affirmatives: thus,

DA- Every thing that is moved, is moved by another;

RI- Some body is moved;

I, Therefore, some body is moved by another.

DARIORIGUM (anc. geog.), a town of the Veneti in Gallia Celtica; called in the Notitia Lugdunensis, *Civitas Venetum*, after the manner of the lower age. Now Vannes or Vennes, in Brittany. W. Long. 2. 37. Lat. 47. 40.

DARIUS, the name of several kings of Persia. See (*History of*) PERSIA.

DARKING, a market-town of Surrey in England, situated ten miles east of Guildford. The market is noted for corn and provisions, more especially for fowls. W. Long. 8. 20. N. Lat. 51. 18.

DARKNESS, the absence, privation, or want of natural light. "Darkness was upon the face of the deep," (Gen. 1. 2.); that is to say, the chaos was plunged in thick darkness, because hitherto the light was not created. One of the most terrible sorts of darkness was that which Moses brought upon Egypt as a plague to the inhabitants of it. The Septuagint, our translation of the Bible, and indeed most others, in explaining Moses's account of this darkness, render it, "a darkness which may be felt:" and the Vulgate has it, "palpable darkness;" that is, a darkness consisting of black vapours and exhalations, so condensed that they might be perceived by the organs of feeling or seeing; but some commentators think that this is carrying the sense too far, since in such a medium as this mankind could not live an hour, much less for the space of three days, as the Egyptians are said to have done, during the time this darkness lasted; and therefore they imagine, that instead of a darkness that may be felt, the Hebrew phrase may signify a darkness wherein men went groping and feeling about for every thing they wanted. Le Clerc is of this opinion, and thinks that Philo, in his life of Moses, understood the passage in its right sense. "For in this darkness (says he), whoever were in bed, durst not get up; and such as their natural occasions compelled to get up, went feeling about by the walls, or any thing they could lay hold on, as if they had been blind." What it was that occasioned this darkness, whether it was in the air or in the eyes; whether it was a suspension of light from the sun in that country, or a black thick vapour which totally intercepted it, there is reason to think that the description which the author of the book of Wisdom (xvii. 1. 2. 3. &c.) gives us of their inward terrors and consternation, is not altogether conjectural, viz. that they were not only prisoners of darkness, and fettered with the bonds of a long night, but were horribly astonished likewise, and troubled with strange apparitions; for while over them was spread an heavy night, they were to themselves more grievous than darkness.

During the last three hours that our Saviour hanged upon the cross, a darkness covered the face of the earth, to the great terror and amazement of the people present at his execution. This extraordinary alteration in the

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the face of nature (says Dr Macknight, in his *Harmony of the Gospels*), was peculiarly proper, whilst the Sun of righteousness was withdrawing his beams from the land of Israel and from the world; not only because it was a miraculous testimony borne by God himself to his innocence; but also because it was a fit emblem of its departure and its effects, at least till his light shone out anew with additional splendor in the ministry of his apostles. The darkness which now covered Judea and the neighbouring countries, beginning about noon, and continuing till Jesus expired, was not the effect of an ordinary eclipse of the sun: for that can never happen but at the new moon; whereas now it was full moon; not to mention, that the total darkness occasioned by eclipses of the sun never continues above twelve or fifteen minutes; wherefore it must have been produced by the divine power, in a manner we are not able to explain. Accordingly, Luke (xxiii. 44, 45.) after relating that there was darkness over all the earth, adds, "and the sun was darkened;" which perhaps may imply, that the darkness of the sun did not occasion, but proceeded from, the darkness that was over all the land. Farther, the Christian writers, in their most ancient apologies to the Heathens, affirm, that as it was full moon at the passover when Christ was crucified, no such eclipse could happen by the course of nature. They observe also, that it was taken notice of as a prodigy by the Heathens themselves.

DARLINGTON, a town of the county of Durham, situated on a flat on the river Skerne, which falls into the Tees. It is a pretty large place, has several streets, and a spacious market-place. It gives title of earl to the Vane family. W. Long. 1. 15. N. Lat. 54. 30.

DARMSTADT, a town of Germany, in the circle of the Upper Rhine, and capital of the landgraviate of Hesse Darmstadt, with a handsome castle, where its own prince generally resides. It is seated on a river of the same name in E. Long. 8. 40. N. Lat. 49. 50.

DARNEL, in botany. See **LOLIUM**.

DARNLEY (Lord). See (*History* of) **SCOTLAND**.

DARTFORD, a town of the county of Kent in England, seated on the river Darent, not far from its influx into the Thames. E. Long. 0. 16. N. Lat. 51. 25.

DARTMOUTH, a sea-port town in Devonshire, seated on the river Dart, near its fall into the sea. It is a well frequented and populous place, having a commodious harbour, and a considerable trade by sea. The town is large and well built; but the streets are narrow and bad, though all paved. It has the title of an earldom, and sends two members to parliament. W. Long. 4. 0. N. Lat. 50. 25.

DARTOS, in anatomy, one of the coats which form the scrotum. It is called the *dartos musc*; but Dr Hunter says, that no such muscle can be found, and Albinus takes no notice of it in his tables.

DASYPUS, the **ARMADILLO** or *Tatou*, in zoology; a genus of quadrupeds, belonging to the order of bruta. The dasypus has neither foreteeth nor dogteeth; it is covered with a hard bony shell, intersected with distinct moveable zones or belts: this shell covers

the head, the neck, the back, the flanks, and extends even to the extremity of the tail; the only parts to which it does not extend, are the throat, the breast, and the belly, which are covered with a whitish skin of a coarse grain, resembling that of a hen after the feathers are pulled off. The shell does not consist of one entire piece, like that of the tortoise: but is divided into separate belts, connected to each other by membranes which enable the animal to move it, and even to roll itself up like a hedge-hog. The number of these belts does not depend on the age of the animal, as some have imagined; but is uniformly the same at all times, and serves to distinguish the different species. All the species of this animal were originally natives of America; they were entirely unknown to the ancients; and modern travellers mention them as peculiar to Mexico, Brasil, and the southern parts of America; though some indeed have confounded them with two species of manis or shell-lizard, which are found in the East Indies: others report that they are natives of Africa, because some of them have been transported from Brasil to the coast of Guinea, where a few have since been propagated: but they were never heard of in Europe, Asia, or Africa, till after the discovery of America.—They are all endowed with the faculty of extending and contracting their bodies, and of rolling themselves up like a ball, but not in so complete a sphere as the hedge-hog. They are very inoffensive animals, excepting when they get into gardens, where they devour the melons, potatoes, and other roots. They walk quickly; but can hardly be said to run or leap, so that they seldom escape the pursuit either of men or dogs. But nature has not left them altogether defenceless. They dig deep holes in the earth; and seldom go very far from their subterraneous habitations: upon any alarm they immediately go into their holes; but, when at too great a distance, they require but a few moments to make one. The hunters can hardly catch them by the tail before they sink their body in the ground; where they stick so close, that the tail frequently comes away and leaves the body in the earth; which obliges the hunters, when they want to take them alive and immutated, to dilate the sides of the hole. When they are taken, and find that there is no resource, they instantly roll themselves up, and will not extend their bodies unless they are held near a fire. When in deep holes, there is no other method of making them come out, but by forcing in smoke or water. They keep in their holes through the day, and seldom go abroad in quest of subsistence but in the night. The hunters usually chase them with small dogs, which easily come up with them. When the dogs are near, the creatures instantly roll themselves up, and in this condition the hunters carry them off. However, if they be near a precipice, they often escape both the dogs and hunters: they roll themselves up, and tumble down like a ball, without breaking their shell, or receiving any injury. The dasypus is a very fruitful animal: the female generally brings forth four young ones every month; which is the reason why the species are so numerous, notwithstanding they are so much sought after on account of the sweetness of their flesh. The Indians likewise make baskets, boxes, &c. of the shells which cover their heads.

Linnaeus enumerates six species of dasypus, principally

Data
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Dative.

pally distinguished by the number of their moveable belts. See Plate CLV.

DATA, among mathematicians, a term for such things or quantities as are given or known, in order to find other things thereby that are unknown. Euclid uses the word *data* (of which he hath a particular tract) for such spaces, lines and angles as are given in magnitude, or to which we can assign others equal.

From the primary use of the word *data* in mathematics, it has been transplanted into other arts; as philosophy, medicine, &c. where it expresses any quantity, which, for the sake of a present calculation, is taken for granted to be such, without requiring an immediate proof for its certainty; called also the *given* quantity, number, or power. And hence also such things as are known, from whence either in natural philosophy, the animal mechanism, or the operation of medicines, we come to the knowledge of others unknown, are now frequently in physical writers called *data*.

DATE, an addition or appendage in writings, acts, instruments, letters, &c. expressing the day and month of the year when the act or letter was passed or signed; together with the place where the same was done. The word is formed from the Latin *datum* "given," the participle of *do* "I give."

Our ancient deeds had no dates, but only the month and year, to signify that they were not made in haste, or in the space of a day, but upon longer and more mature deliberation. The king's grants began with these words, *Præsentibus & futuris*. &c. but the grants of private persons with *Omnibus præsentibus literas inspec-turis*, &c.

A deed is good, though it mentions no date or hath a false date; or even if it hath an impossible date, as the 30th of February; provided the real day of its being dated or given, that is, delivered, can be proved. *Blackst. Com. vol. ii. p. 304.*

DATE, the fruit of the great palm-tree. See **PHOENIX**.

DATI (Carlo), professor of polite learning at Florence. His native country became very famous, as well on account of his works, as of the eulogies which have been bestowed on him by learned men. The chief work to which Dati applied himself, was *Della Pittura Antica*, of which he published an essay in the year 1667. He died in 1675, much lamented, as well for his humanity and amiable manners as for his parts and learning.

DATISCA, in botany: A genus of the dodecandria order, belonging to the dioecia class of plants; and in the natural method ranking under the 54th order, *Miscellanea*. The male calyx is pentaphyllous; there is no corolla; the antheræ are sessile, long, and 15 in number. The female calyx is bidentate; no corolla; the styles three; the capsule triangular, three-horned, unilocular, pervious, polyspermous, inferior.

DATISI, in logic, a mode of syllogisms in the third figure, wherein the major is an universal affirmative, and the minor and conclusion particular affirmative propositions. For example,

DA- All who serve God are kings;

TI- Some who serve God are poor;

SI, Therefore, some who are poor are kings.

DATIVE, in grammar, the third case in the de-

clension of nouns: expressing the state or relation of a thing to whose profit or loss some other thing is referred. See **GRAMMAR**.

It is called *dative*, because usually governed by a verb, implying something to be given to some person. As, *commodare Socrati*, "to lend to Socrates;" *utilis reipublicæ*, "useful to the commonwealth;" *perniciosus ecclesiæ*, "pernicious to the church."

In English, where we have properly no cases, this relation is expressed by the sign *to*, or *for*.

DATUM, or **DATUS** (anc. geog.), a town of Thrace, situated between Neapolis and the river Nestus: A colony of the Thracians, according to Eustathius; who places it on the sea-coast, near the Strymon, in a rich and fruitful soil, famous for ship-building and mines of gold; hence the proverb *Δαλος Αγαθόν*, denoting prosperity and plenty (Strabo.) Apian describes it as seated on a steep eminence, the whole of which it covered. It was taken by Philip of Macedon, who changed its name to Philippi, being originally called Crenides on account of its springs. It was afterwards famous for the defeat of Brutus and Cassius, by Augustus and Antony.

DATURA, the **THORN-APPLE**, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 28th order, *Lurida*. The corolla is funnel-shaped, and plaited; the calyx tubular, angulated, and deciduous; the capsule quadrivalved. There are six species. The stramonium, or common thorn-apple, which rises a yard high, with an erect, strong, round, hollow, green stalk, branching luxuriantly, having the branches widely extended on every side; large, oval, irregularly angulated, smooth, dark-green leaves; and from the divisions of the branches, large white flowers singly, succeeded by large, oval, prickly capsules, growing erect, commonly called *thorn-apples*. At night the upper leaves rise up and inclose the flowers. The blossoms have sometimes a tinge of purple or violet. The flowers consist of one large, funnel-shaped petal, having a long tube, and spreading pentagonal limb, succeeded by large roundish capsules of the size of middling apples, closely beset with sharp spines. An ointment prepared from the leaves gives ease in external inflammations and in the hæmorrhoids. The seeds were lately recommended by Dr Storck to be taken internally in cases of madness; but they seem to be a very unsafe remedy. Taken even in a small dose, they bring on a delirium, and in a large one would certainly prove fatal. Cows, horses, sheep, and goats, refuse to eat this plant.

DAUCUS, the **CARROT**, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The corolla is a little radiated, all hermaphrodite. The fruit bristly with short hairs. There are five species; but the only one which merits attention is the carota, or common carrot. This is so well known as to need no description. There are several varieties, as the white, the orange, and the purple carrot; but of these the orange carrot is the most esteemed. It grows longer, larger, and is commonly more handsome than the others, being often 15 or 18 inches long in the eatable part, and from two to four in diameter at top. Carrots are propagated by seeds, which

Datum
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Daucus.

Daucus.

which are sown at different seasons of the year, in order to procure a supply of young roots for the table at all times. The season for sowing for the earliest crop is soon after Christmas. They should be sown in an open situation, but near a wall; though if they are sown close under it, they will be apt to run up to seed too fast, and give no good roots: about eight inches distance is the most proper. They delight in a warm sandy soil, which should be light, and well dug to a good depth, that the roots may meet with no obstruction in running down, so as to make them forked, and shoot out lateral branches. This will happen especially when the ground has been too much dunged the same year that the seeds were sown, which will also occasion them to be worm-eaten. The hairyness of these seeds makes the sowing of them difficult, on account of their being so apt to stick together. Before sowing therefore, they should be put through a fine chaff sieve; and a calm day should be chosen for sowing them. When sown, they should be trod in with the feet, and the ground raked level over them. When they first come up, they should be cut up to four inches distance, and a month after this they are to be cleared again; and if drawn while young, they are now to be left at six inches distance every way; if they are to stand to grow large, they must be separated to ten inches distance. The second season for sowing carrots is in February. This must be done under a wall or hedge, on warm banks: but those which are to be on open large quarters should not be sown till the beginning of March. In July, carrots may be sown for an autumnal crop; and lastly, in the end of August, for those which are to stand the winter. These last will be fit for use in March, before any of the spring ones; but they are seldom so tender or well tasted. In order to preserve carrots for use all winter, they are to be dug up in the beginning of November, and laid in a dry place in sand; and these roots being again planted in February, will ripen seeds in August for succeeding crops; the longest and straightest roots are to be chosen for this purpose.

Under the article AGRICULTURE, n^o 44. we have taken notice of the good properties of carrots as a food for cattle. They have been greatly recommended as proper for fattening hogs; but from some experiments mentioned in the *Georgical Essays* it appears, that though the bacon thus fed is of excellent quality, the feeding is considerably dearer than that fed with pease, pollard, &c. In the same essays, the following experiment is mentioned by Dr Hunter, concerning the propriety of raising carrots for the use of the distiller. "In the month of October (1773), I took 24 bushels of carrots. After being washed, topped, and tailed, I put them into a large brewing copper with four gallons of water; and covering them up with cloths to hasten the maceration, I ordered a fire to be kindled underneath, which in a short time reduced the whole into a tender pulp. They were then put into a common screw-press, and the juice taken from them; which, together with the liquor left in the copper, was run through a flannel bag. The juice was then returned into the copper; and as it was my design to make it into ale, I put to it a proportionable quantity of hops. The liquor was then boiled about an hour, when it ac-

No. 98.

quired both the taste and colour of wort. It was next put into a cooler, and afterwards into the working vessel, where the yeast was added to it. It worked kindly, and in all respects was treated as ale. I allowed it to remain in the cask about four months, when I broached it, but found it of a thick, muddy appearance. I attempted to fine it, but in vain. The taste was by no means displeasing, as it much resembled malt liquor. My first intention being frustrated, I threw it into the still, being about 40 gallons in measure, and by two distillations obtained four gallons of a clean proof spirit. It had, however, contracted a flavour from the hop, which should be left out when the intention is to reduce the liquor into spirit. From a gross calculation, I am induced to think that a good acre of carrots manufactured in this manner will leave a profit of L. 40 after deducting the landlord's rent, cultivation, distillation, and other incidental expences. In this calculation, I presume that the spirit is worth six shillings per gallon, and not excised. An acre of barley will by no means produce so much spirit. A rich sandy loam is the best land for carrots; which, after the crop is removed, will be in high cultivation for corn."

Attempts have also been made to prepare sugar from carrots, but without success; a thick syrupy matter like treacle being only obtainable.—Raw carrots are given to children troubled with worms. They pass through most people but little changed.—A poultice made of the roots hath been found to mitigate the pain and abate the stench of foul and cancerous ulcers.—Crickets are very fond of carrots; and are easily destroyed by making a paste of powdered arsenic, wheat-meal, and scraped carrots, which must be placed near their habitations.—By their strong antileptic qualities, a marmalade made from carrots has also been found useful in preventing and curing the sea-scurvy.—The seeds have been reckoned carminative and diuretic; and were formerly much used as a remedy for the stone, but are at present disregarded.—Carrots were first introduced into England by the Flemings, in the reign of queen Elizabeth.

DAVENANT (Sir William), an eminent poet in the 17th century, was born at Oxford in 1606. After some stay at the university, he entered into the service of Frances first duchess of Richmond, and afterward of Fulke Grevil, lord Brook; who having an excellent taste for poetry, was much charmed with him. He got great esteem by writing poems and plays; and upon the death of Ben Johnson was created poet-laureat. He wrote his poem *Gondibert* at Paris. He formed a design for carrying over a considerable number of artificers, especially weavers, to Virginia, by the encouragement of Henrietta Maria, the queen-mother of England, who obtained leave for him of the king of France. But he and his company were seized by some parliament ships, and he carried prisoner first to the isle of Wight, and then to the tower of London; but, by the mediation of Milton and others, he got his liberty as a prisoner at large. At this time tragedies and comedies being prohibited, he contrived to set up an Opera, to be performed by declamations and music. This Italian opera began in Rutland-house in Charter-house-yard, 1656; but was afterwards removed to the

Cock-

Daucus,
Davenant.

Flying Opossum.



Didelphis.
Spotted Opossum. Kangaroo.



Surinam Opossum.



Kangaroo Rat.



Female.

Mexican Op.

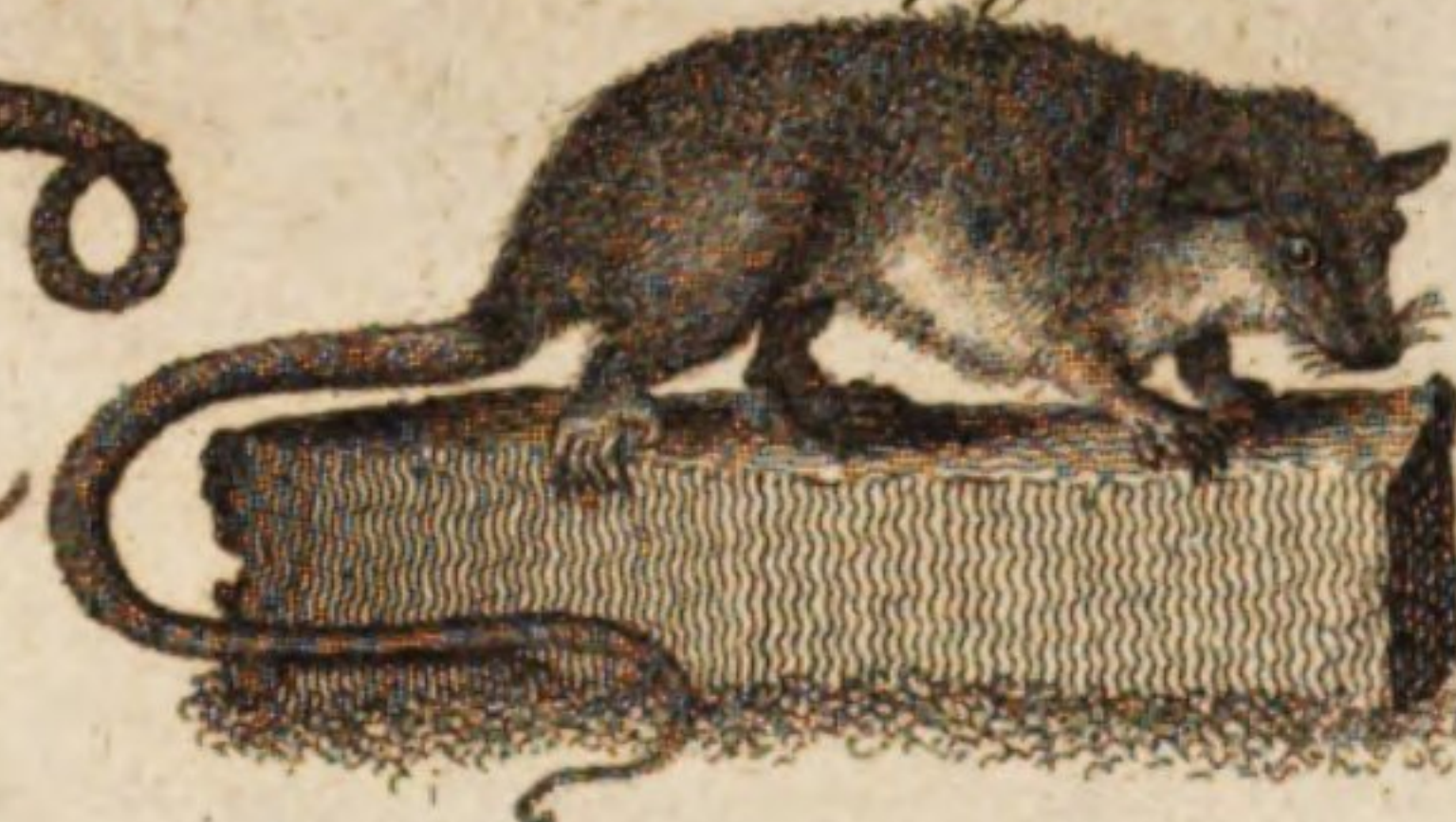
Cayenne Opossum.



Virginian Opossum.



Murine Opossum.



Dasyurus or Armadillo.
Twelve banded A.

Six Banded A.



Nine Banded A.



Delphinus the Dolphin.



Davenant Cock-Pit in Drury-Lane, and was much frequented for many years. In 1648, his *Madagascar*, with other poems, were printed. He died in 1668.

Davidists.

DAVENANT (Doctor Charles), an eminent civilian and writer, eldest son of the preceding, and educated at Cambridge: he wrote several political tracts, and likewise plays. He was (1685) impowered, with the master of the revels, to inspect the plays designed for the stage, that no immoralities might be presented. His *Essays on Trade* are in high esteem, and were reprinted in 5 vols 8vo, in 1771. Doctor Davenant was inspector-general of exports and imports; and died in 1712.

DAVENTRY, or **DAINTRY**, a handsome town of Northamptonshire in England, situated on the side of a hill on the great road to Chester and Carlisle. W. Long. 1. 15. N. Lat. 52. 12.

DAUGHTER, (*filia*), a female child. See the article **CHILDREN**.

Daughters, among the ancients, were more frequently exposed than sons, as requiring greater charge to educate and settle them in the world. See *Exposing of Children*. Those who had no legitimate sons were obliged, by the Athenian laws, to leave their estates to their daughters, who were confined to marry their nearest relations, otherwise to forfeit their inheritance; as we find to have been practised likewise among the Jews, many of whose laws seem to have been transcribed by Solon.

If an heiress happened to be married before her father's death, this did not hinder the nearest relation to claim the inheritance, and even to take the woman from her husband; which is said to have been a common case.

DAVID, king of Israel, and Hebrew poet, was born at Bethlehem 1085, and died 1014 years B. C. His history is particularly recorded in the sacred writings.

ST DAVID'S, an episcopal town of Pembrokeshire, in S. Wales; but has neither market nor fair. It is seated in a barren soil on the river Ilen, not a mile from the sea-shore. It was once a considerable place, and had walls, which are now demolished; but it is small at present, and thinly inhabited; however, the cathedral is a pretty good structure. From the cape, near this place, there is a prospect into Ireland. W. Long. 5. 20. N. Lat. 52. 0.

ST DAVID'S, a town and fort of Asia, in the peninsula on this side the Ganges, and on the coast of Coromandel, 80 miles south of Fort St George. E. Long. 79. 55. N. Lat. 11. 30. On the taking of Madras by the French in 1746, the presidency of all the English settlements on the Coromandel coast was removed to Fort St David, and continued there till about the year 1752, when it was removed back to Madras. In June 1758, the fort was taken and demolished by the French, and has never been rebuilt since.

DAVIDISTS, **DAVIDICI**, or **DAVID GEORGIANS**, a sect of heretics, the adherents of David George, a native of Delft, who, in 1525, began to preach a new doctrine; publishing himself to be the true Messiah; and that he was sent thither to fill heaven, which was quite empty for want of people to deserve it. He is likewise said to have denied the existence of angels, good and evil, of heaven and hell, and to have rejected

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the doctrine of a future judgment. He rejected marriage, with the Adamites; held, with Manes, that the soul was not defiled by sin; and laughed at the self-denial so much recommended by Jesus Christ. Such were his principal errors. He made his escape from Delft, and retired first into Friesland, and then to Basil, where he changed his name, assuming that of John Bruck, and died in 1556.

He left some disciples behind him, to whom he promised, that he would rise again at the end of three years. Nor was he altogether a false prophet herein; for the magistrates of that city, being informed, at the three years end, of what he had taught, ordered him to be dug up and burnt, together with his writings, by the common hangman.

There are still some remains of this ridiculous sect in Holstein, Friesland, and other countries, whose temper and conduct seem to discredit the exaggerated account which some writers have given of their founder. He was probably a deluded fanatic and mystic.

DAVILA (Henry Catherine), a celebrated historian, was the youngest son of Antonio Davila, grand constable of Cyprus, who, on the taking of that island by the Turks in 1570, had been obliged to retire into Spain, whence this family supposed they had derived their name and origin. From Spain Antonio repaired to the court of France, and settled his son Louis and two daughters under the patronage of Catherine of Medicis; whose name he afterwards gave to the young historian, born 1576, at an ancient castle in the territories of Padua, though generally called a native of Cyprus. The little Davila was brought early into France; and at the age of 18, he signalized himself in the military scenes of that country. His last exploit there was at the siege of Amiens, where he fought under Henry IV. and received a wound in the knee, as he relates himself in his history. After peace was established in France, he withdrew into Italy, and entered into the service of the Venetians. Davila, while he was at Venice, wrote his admirable history of the Civil Wars in France, which contains every thing worth notice that passed from the death of Henry II. in 1559, to the peace of Vervins in 1598. He continued to serve the republic of Venice with great reputation, till a most unfortunate adventure put an end to his life in 1631. Passing thro' Verona with his wife and family, on his way to Crema, which he was appointed to defend, and demanding, according to the usual custom of persons in his station, a supply of horses and carriages for his retinue, a brutal Veronese, called *il Turco*, entered the room where he and his family were at supper, and being mildly reprimanded for his intrusion by Davila, discharged a pistol at the historian, and shot him dead on the instant. His accomplices also killed the chaplain of Davila, and wounded many of his attendants. But his eldest son Antonio, a youth of 18, revenged the death of his father, by killing the murderer on the spot. All the confederates were secured next morning, and publicly executed at Verona. It is very remarkable, that Davila passed no censure on the massacre of St Bartholomew. His character of the queen mother has that partiality, which it was natural for him to show to the patroness of his family; but his general veracity is confirmed by

Davila.

Davis
||
Davit.

the great authority of the first duke of Epernon, who (to use the words of lord Bolingbroke) "had been an actor, and a principal actor too, in many of the scenes that Davila recites." Girard, secretary to the duke, and no contemptible biographer, relates, that this history came down to the place where the old man resided in Gascony, a little before his death; that he read it to him; that the duke confirmed the truth of the narration of it; and seemed only surprised by what means the author could be so well informed of the most secret councils and measures of those times.

DAVIS (Sir John), an eminent lawyer and poet, born about the year 1570. He first distinguished himself by his poem *Nasce Teipsum* on the Immortality of the Soul. He became attorney-general, and speaker of the house of commons in Ireland; and afterwards was appointed lord chief justice of the court of King's Bench in England, but died before his installation, in 1626. He published many law tracts; but was esteemed more of a scholar and a wit than of a lawyer.

DAVIS (John), a famous navigator in the 16th century, was born at Sandridge, near Dartmouth in Devonshire; and distinguished himself by making three voyages to the most northern parts of America, in order to discover a north-west passage to the East Indies; in which he discovered the Straits which bear his name. He afterwards performed five voyages to the East Indies; in the last of which he was slain in a desperate fight with some Japanese, near the coast of Malacca, on the 27th of December 1605. He wrote an account of his second voyage for the discovery of the north-west passage; a voyage to the East Indies; and other tracts.

DAVIS'S Straits. See *NEW BRITAIN*.

DAVIT, in a ship, a long beam of timber, represented by *a*, *a*, Plate CLXV. and used as a crane whereby to hoist the flukes of the anchor to the top of the bow, without injuring the sides of the ship as it ascends; an operation which, by mariners, is called *fishing the anchor*. The anchors being situated on both the bows, the davit may be occasionally shifted, so as to project over either side of the ship, according to the position of that anchor on which it is employed. The inner end of the davit is secured by being thrust into a square ring of iron *b*, which is bolted to the deck, and forelocked under the beams. This ring, which is called the *span-shackle*, exhibited at large by fig. 9. is fixed exactly in the middle of the deck, and close behind the foremast. Upon the outer end of the davit is hung a large block *c*, through which a strong rope traverses, called the *fish-pendent*, *d*; to whose foremost end is fitted a large iron hook *e*, and to its after-end a tackle or complication of pulleys *f*; the former of which is called the *fish-hook*, and the latter the *fish-tackle*.

The davit, therefore, according to the sea-pharse, is employed to *fish the anchor*; which being previously *catted*, the fish-hook is fastened upon its flukes; and the efforts of the tackle being transmitted to the hook, by means of the fish-pendent, draws up that part of the anchor sufficiently high upon the bow to fasten it, which is done by the *shank-painter*. See that article.

—There is also a davit of a smaller kind occasionally

fixed in the long-boat, and employed to weigh the *Dauphin*. anchor therein.

DAUPHIN, is a title given to the eldest son of France, and presumptive heir of the crown; on account of the province of Dauphiné, which in 1343 was given to Philip de Valois, on this condition, by Humbert dauphin of the Viennois. The dauphin, in his letters patent, styles himself, *By the grace of God, eldest son of France, and dauphin of Viennois*.

DAUPHIN was anciently the title or appellation of the prince of Viennois in France.

Most authors who have sought the origin of the name *Dauphin* and *Dauphiné*, seem to have given too much loose to conjecture. Du-Chesne is of opinion that it was the grandson of Guy the Fat who first bore the name of *dauphin*. Chorier observes, that William, canon of Notre Dame at Grenoble, who has written the life of Margaret, daughter of Stephen earl of Burgundy, married with Guy, son of Guy the Fat, calls the latter simply Guy the Old, and the former always count Dauphin; and adds, that no record nor monument ever attributes the title of dauphin to Guy the Fat, or any of his predecessors: so that it must necessarily have taken its rise in his son, all whose successors so constantly assumed it, that it became the proper name of the family. He died in 1142, in the flower of his youth; so that it must be about the year 1120 that the title commenced; and without doubt, adds he, on some illustrious occasion. He observes farther, that this prince was of a military disposition, and delighted in nothing but war; and again, that it was the custom of the cavaliers to deck their casques, coats of arms, and the housing of their horses, with some figure or device peculiar to themselves, whereby they were distinguished from all others engaged in the same combat or tournament. From all these circumstances he conjectures, that this Guy chose the dolphin for his signature; that this was the crest of his helmet; and that he bore it on his coat in some notable tournament or battle, wherein he distinguished himself. And this, Chorier makes no doubt, is the real origin of the appellation. Nothing was more common in those times than to make proper names become the names of families or dignities. Witness the Ademars, Arthauds, Aynards, Atlemans, Berengiers, and infinite others; who all owe their names to some one of their ancestors, from whom it has been transmitted throughout the family.

The seigneurs or lords of Auvergne have likewise borne the appellation of *dauphin*; but the dauphins of Auvergne had it not till a good while after those of the Viennois, and even received it from them. The manner was this: Guy VIII. dauphin of Viennois, had by his wife Margaret, daughter of Stephen earl of Burgundy, a son and two daughters. The son was Guy IX. his successor. Beatrix, one of the daughters, was married to the count d'Auvergne, who, according to Blondel, was William V. or rather, as Chorier and others hold, Robert VI. father of William V. This prince lost the greatest part of the county Auvergne, which was taken from him by his uncle William, assisted by Louis the Young: and was only left master of the little canton whereof Vodable is the capital. He had a son whom he called Dauphin, on account of Guy, or Guignes, his uncle by the mother's side.

From

Dauphin From his time his successors, holding the same petty canton of Auvergne, styled themselves *dauphins of Auvergne*, and bore a dolphin for their arms.

DAUPHINS, or *Delphins*, in literary history, a name given to the commentators on the ancient Latin authors, who were employed by order of Louis XIV. of France, for the benefit of the prince, under the care and direction of M. de Montausier his governor, and Bossuet and Huet his preceptors. They were 39 in number.

DAUPHINY, a province of France, bounded on the west by the river Rhone, on the north by the Rhone and Savoy, on the south by Provence, and on the east by the Alps. Hence the presumptive heir of France is called the **DAUPHIN**. In some places it is very fertile; and produces corn, wine, olives, woad, copperas, silk, crystal, iron, and copper. But the greatest part of the province is barren, and the inhabitants are obliged to go into other countries for subsistence. The mountains abound in simples and game of all sorts; and here are fir-trees proper for masts. The principal rivers are, the Rhone, the Durance, the Isere, and the Drone. There is a great number of mineral springs; and Grenoble is the capital town.

DAURAT (John), an eminent French poet, born in 1507. In the reign of Henry II. he was preceptor to the king's pages, and Charles IX. who took great delight in his conversation, and honoured him with the title of his poet; but his generosity and want of management placed him in that class of learned men who have been very near starving. Conformable to the taste of the age, he had so much skill in making anagrams, that several illustrious persons gave him their names to anagrammatise: he also undertook to explain the Centuries of Nostradamus. Making verses was a disease in him: for no book was printed, nor did any person of consequence die, but Daurat made some verses on the occasion; as if he had been poet in ordinary, or his muse had been a hired mourner, to the whole kingdom. Scaliger tells us, that he spent the latter part of his life in endeavouring to find all the bible in Homer. He died in 1588.

DAY, according to the most natural and obvious sense of the word, signifies that space of time during which it continues to be light; in contradistinction to night, being that partition of time wherein it is dark: but the space of time in which it is light, being somewhat vague and indeterminate, the time between the rising and the setting of the sun is usually looked on as the day; and the time which lapses from its setting to its rising again, the night.

The word *day* is often taken in a large sense, so as to include the night also; or to denote the time of a whole apparent revolution of the sun round the earth; in which sense it is called by some a natural day; and by others an artificial one: but, to avoid confusion, it is usual to call it in the former sense simply the *day*, and in the latter a *nychthemeron*; by which term that acceptation of it is aptly denoted, as it implies both day and night.

The *nychthemeron* is divided into twenty-four parts, called *hours*; which are of two sorts, equal and unequal, or temporary. See the article **Hour**.

Different nations begin their day at a different hour. Thus the Egyptians begin their day at midnight; from

whom Hippocrates introduced that way of reckoning into astronomy, and Copernicus and others have followed him: But the greatest part of astronomers reckon the day to begin at noon, and so count twenty-four hours, till the noon of the next day; and not twice twelve, according to the vulgar computation. The method of beginning the day at midnight prevails in Britain, France, Spain, and most parts of Europe.

The Babylonians began their day at sun-rising: reckoning the hour immediately before its rising again, the twenty-fourth hour of the day; from whence the hours reckoned in this way are called the *Babylonic*. In several parts of Germany, they begin their day at sun-setting, and reckon on till it sets next day, calling that the *twenty-fourth hour*: these are generally termed *Italian hours*. The Jews also began their *nychthemeron* at sun-setting: but then they divided it into twice twelve hours as we do; reckoning twelve for the day, be it long or short, and twelve for the night; so that their hours continually varying with the day and night, the hours of the day were longer than those of the night for one half year, and the contrary the other; from whence their hours are called temporary: those at the time of the equinoxes became equal, because then those of the day and night are so. The Romans also reckoned their hours after this manner, as do the Turks at this day.

This kind of hours is called *planetary*, because the seven planets were anciently looked upon as presiding over the affairs of the world, and to take it by turns each of these hours, according to the following order: Saturn first, then Jupiter, Mars, the Sun, Venus, Mercury, and last of all the Moon: hence they denominated each day of the week from that planet whose turn it was to preside the first hour of the *nychthemeron*. Thus, assigning the first hour of Saturday to Saturn, the second will fall to Jupiter, the third to Mars, and so the twenty-second of the same *nychthemeron* will fall to Saturn again, and therefore the twenty-third to Jupiter, and the last to Mars: so that on the first hour of the next day, it will fall to the Sun to preside; and by the like manner of reckoning, the first hour of the next will fall to the Moon; of the next, to Mars; of the next to Mercury; of the next to Jupiter; and of the next, to Venus: hence the days of the week came to be distinguished by the Latin names of *Dies Saturni*, *Solis*, *Lunæ*, *Martis*, *Mercurii*, *Jovis*, and *Veneris*; and among us, by the names of Saturday, Sunday, Monday, &c.

DAY-Coal, in natural history, a name given by the miners of England, and the common people who live in coal countries, to that seam of stratum or the coal which lies uppermost in the earth. The same vein or stratum of coal usually runs a great way through the country, and dips and rises in the earth at different places; so that this upper stratum, or day-coal, is, in the various parts of the same stratum, sometimes near the surface, and sometimes many fathoms deep. The subterranean fires found in some of our coal-countries feed principally on this coal; and are nearer to or farther from the surface as it rises or sinks.

DAY-Fly. See **EPHEMERIS**.

DAY-Net, among fowlers. See **NET**.

DAYS of Grace, are those granted by the court at the prayer of the defendant or plaintiff, in whose delay it is.

Day
||
Deacon.

Days of grace, in commerce, are a customary number of days allowed for the payment of a bill of exchange, &c. after the same becomes due.

Three days of grace are allowed in Britain; ten in France and Dantzic; eight at Naples; six at Venice, Amsterdam, Rotterdam, and Antwerp; four at Frankfurt; five in Leipzig; twelve at Hamburg; six in Portugal; fourteen in Spain; thirty in Genoa, &c.

In Britain the days of grace are given and taken as a matter of course, the bill being only paid on the last day: but in other countries, where the time is much longer, it would be reckoned dishonourable for a merchant to take advantage of it; bills are therefore paid on the very day they fall due.

Day's-Man, in the north of England, an arbitrator or person chosen to determine an affair in dispute.

Intercalary Days. See *INTERCALARY Days*.

Day's-Work, among seamen, the reckoning or account of the ship's course during 24 hours, or between noon and noon, according to the rules of trigonometry. See *DEAD-Reckoning*.

DAZE, in natural history, a name given by our miners to a glittering sort of stone, which often occurs in their works; and, as it is an unprofitable substance, is one of those things they call *weeds*. The word *daze* takes in with them every stone that is hard and glittering; and therefore it comprehends the whole genus of the telangia or stony nodules, which have the flakes of talk in their substance: these, according to the colour of the stoney matter they are bedded in, and their own colour, give the names of *black daze*, *white*, *red*, and *yellow daze*, to these stones.

DEACON, *DIACONUS*, a person in the lowest degree of holy orders, whose business is to baptize, read in the church, and assist at the celebration of the eucharist. The word is formed from the Latin *Diaconus*, of the Greek *διακονος*, minister, servant. Deacons were instituted seven in number, by the apostles, *Acts* chap. vi. which number was retained a long time in several churches. Their office was to serve in the Agapæ, and to distribute the bread and wine to the communicants. Another part of the office of deacons, was to be a sort of monitors and directors to the people in the exercise of their public devotions in the church; for which purpose they made use of certain known forms of words, to give notice when each part of the service began. Whence they are sometimes called *eiropkerukes*, "the holy cryers of the church."

Deacons had, by licence and authority from the bishop, a power to preach, to reconcile penitents and grant them absolution, and to represent their bishops in general councils. Their office out of the church was to take care of the necessitous, such as orphans, widows, prisoners, and all the poor and sick who had any title to be maintained out of the revenues of the church; to inquire into the morals and conversation of the people, and to make their report thereof to the bishop. Whence, on account of the variety of business, it was usual to have several deacons in the same church.

In the Romish church, it is the deacon's office to incense the officiating priest or prelate; to lay the corporal on the altar; to receive the patten or cup from the subdeacon, and present them to the person officiating; to incense the choir; to receive the pax from the officiating prelate, and carry it to the subdeacon; and

at the pontifical mass, when the bishop gives the blessing, to put the mitre on his head, and to take off the archbishop's pall and lay it on the altar. In England, the form of ordaining deacons, declares that it is their office to assist the priest in the distribution of the holy communion: in which, agreeably to the practice of the ancient church, they are confined to the administering the wine to the communicants. A deacon in England is not capable of any ecclesiastical promotion; yet he may be a chaplain to a family, curate to a beneficed clergyman, or lecturer to a parish-church. He may be ordained at 23 years of age, *anno currente*; but it is expressly provided, that the bishop shall not ordain the same person a priest and deacon in the same day. Deacons, according to St Paul, should be chaste, sincere, and blameless; neither great drinkers, nor given to filthy lucre: they should hold the mystery of the faith in a pure conscience; and should be well approved before they are admitted to the ministry. In the church of Scotland, the deacon's office is only to take care of the poor.

DEACONESS, a *female deacon*; an order of women who had their distinct offices and services in the primitive church. This office appears as ancient as the apostolical age; for St Paul calls Phebe a servant of the church of Cenchrea. The original word is *διακονος*, answerable to the Latin word *ministra*. Tertullian calls them *vidua*, widows, because they were commonly chosen out of the widows of the church; and, for the same reason, Epiphanius, and the council of Laodicea, calls them *πρεσβυτιδας*, elderly women, because none but such were ordinarily taken into this office. For, indeed, by some ancient laws, these four qualifications were required in every one that was to be admitted into this order. 1. That she should be a widow. 2. That she should be a widow that had born children. 3. A widow that was but once married. 4. One of a considerable age, 40, 50, or 60 years old. Though all these rules admitted of exceptions. Concerning their ordination, whether it was always performed by imposition of hands, the learned are much divided in their sentiments. Baronius and Valesius think they were not, and make no other account of them than as mere lay-persons. But the author of the constitutions, speaking of their ordination, requires the bishop to use imposition of hands, with the form of prayer which is there recited. We are not, however, to imagine, that this ordination gave them any power to execute any part of the sacerdotal office. They were only to perform some inferior services of the church, and those chiefly relating to the women for whose sakes they were ordained. One part of their office was to assist the minister at the baptizing of women, to undress them for immersion, and to dress them again, that the whole ceremony might be performed with all the decency becoming so sacred an action. Another part of their office was to be private catechists to the women-catechumens who were preparing for baptism. They were likewise to attend the women that were sick and in distress; to minister to martyrs and confessors in prison; to attend the women's gate in the church; and lastly, to assign all women their places in the church, regulate their behaviour, and preside over the rest of the widows; whence in some canons they are styled *προνους*, "governesses." This order, which since the

Deaconry
||
Dead-
Water.

the 10th or 12th century has been wholly laid aside, was not abolished every where at once, but continued in the Greek church longer than in the Latin, and in some of the Latin churches longer than in others.

DEACONRY, DIACONATE, the order or ministry of a deacon or deaconess. See DEACON and DEACONESS.

DEACONRY, *Diaconia*, is also a name still reserved to the chapels and oratories in Rome, under the direction of the several deacons, in their respective regions or quarters.

To the deaconries were annexed a sort of hospitals or boards for the distribution of alms, governed by the regionary deacons, called *cardinal deacons*, of whom there were seven, answering to the seven regions, their chief being called the *archdeacon*.

The hospital adjoining to the church of the deaconry had an administrator for the temporal concerns, called the *father of the deaconry*, who was sometimes a priest and sometimes a layman.

At present there are fourteen of these deaconries or hospitals at Rome, which are reserved to the cardinals. Du Cange gives us their names: as, the deaconry of St Maria in the Broad-way, the deaconry of St Eustachio near the Pantheon, &c.

DEAD LANGUAGES. See PHILOLOGY, chap. iii.

Preservation of DEAD Bodies. See EMBALMING.

Feast of the DEAD. See FEAST of the Dead.

DEAD-Lights, certain wooden ports which are made to fasten into the cabin windows, to prevent the waves from gushing into the ship in a high sea. As they are made exactly to fit the windows, and are strong enough to resist the waves, they are always fixed in on the approach of a storm, and the glass lights taken out, which must otherwise be shattered to pieces by the surges, and suffer great quantities of water to enter the vessel.

DEAD-Mens-Eyes, in the sea-language, a kind of blocks with many holes in them, but no sheevers, whereby the throwds are fastened to the chains; the crow-feet reeve also through these holes: and, in some ships, the main-stays are set tight in them; but then they have only one hole, through which the lanyards are passed several times. See Plate CLXV.

DEAD's Part. See LAW, N° clxxxix. 6.

DEAD-Reckoning, in navigation, the judgment or estimation which is made of the place where a ship is situated; without any observation of the heavenly bodies. It is discovered by keeping an account of the distance she has run by the log, and of her course steered by the compass; and by rectifying these data by the usual allowance for drift, lee-way, &c. according to the ship's known trim. This reckoning, however, is always to be corrected, as often as any good observation of the sun can be obtained.

DEAD-Sea, in geography, a lake of Judea, into which the river Jordan discharges itself; being about 70 miles long and 20 broad. See ASPHALTITES.

DEAD-Tops, a disease incident to young trees, and cured by cutting off the dead parts close to the next good twig or shoot, and claying them over as in grafting.

DEAD-Water, at sea, the eddy-water just astern of a ship; so called because it does not pass away so swift as the water running by her sides does. They say that

a ship makes much dead-water when she has a great eddy following her stern.

DEADLY-CARROT. See THAPSIA.

DEADLY-Feud, in English law-books, a profession of irreconcilable enmity, till a person is revenged by the death of his enemy. The word *feud* is derived from the German *Fehd*; which, as Hottoman observes, signifies *modo bellum, modo capitales inimicitias* *. Such enmity and revenge was allowed by law in the time of the Saxons, viz. If any man was killed, and a pecuniary satisfaction was not made to the kindred, it was lawful for them to take up arms and revenge themselves on the murderer: which was called *deadly feud*. And this probably was the original of an APPEAL.

DEAFNESS, the state of a person who wants the sense of hearing; or the disease of the ear, which prevents its due reception of sounds. See MEDICINE-Index.

Deafness generally arises either from an obstruction or a compression of the auditory nerve; or from some collection of matter in the cavities of the inner ear; or from the auditory passage being stopped up by some hardened excrement; or, lastly, from some excrescence, a swelling of the glands, or some foreign body introduced within it.

Those born deaf are also dumb, as not being able to learn any language, at least in the common way. However, as the eyes in some measure serve them for ears, they may understand what is said by the motion of the lips, tongue, &c. of the speaker; and even accustom themselves to move their own, as they see other people do, and by this means learn to speak.— Thus it was that Dr Wallis taught two young gentlemen born deaf to know what was said to them, and to return pertinent answers. Digby gives us another instance of the same within his own knowledge; and there was a Swiss physician lately living in Amsterdam, one John Conrad Amman, who effected the same in several children born deaf with surprising success. He has reduced the thing to a fixed art or method, which he has published in his *Surdus Loquens*, Amstelod. 1692, and *de Loquela*, ibid. 1700.

In the Phil. Trans. N° 312. we have an account by Mr Waller, R. S. Secr. of a man and his sister, each about 50 years old, born in the same town with Mr Waller, who had neither of them the least sense of hearing; yet both of them knew, by the motion of the lips only, whatever was said to them, and would answer pertinently to the question proposed. It seems they could both hear and speak when children, but lost their sense afterwards: whence they retained their speech, which, though uncouth, was yet intelligible.

Such another instance is that of Mr Goddy's daughter, minister of St Gervais in Geneva, related by Bishop Burnet. "At two years old they perceived she had lost her hearing; and ever since, though she hears great noises, yet hears nothing of what is said to her. But by observing the motions of the mouth and lips of others, she acquired so many words, that out of these she has formed a sort of jargon, in which she can hold conversation whole days with those that can speak her language. See knows nothing that is said to her, unless she see the motion of their mouths that speak to her, so that in the night they are obliged to light candles to speak to her. One thing will appear the strangest

Deadly-
Carrot
||
Deafness.

* See Feud.

Deal,
Dean.* See fur-
ther the
article
Dumbness.

strangest part of the whole narration: she has a sister, with whom she has practised her language more than with any body else; and in the night, by laying her hand on her sister's mouth, she can perceive by that what she saith, and so can discourse with her in the dark." *Burn. Let. IV. p. 248**.

It is observable, that deaf persons, and several others thick of hearing, hear better and more easily if a loud noise be raised at the time when you speak to them: which is owing, no doubt, to the greater tension of the ear-drum on that occasion. Dr Wallis mentions a deaf woman, who if a drum were beat in the room could hear any thing very clearly; so that her husband hired a drummer for a servant, that by this means he might hold conversation with his wife. The same author mentions another, who, living near a steeple, could always hear very well if there was a ringing of three or four bells, but never else.

DEAL, a thin kind of fir-planks, of great use in carpentry. They are formed by sawing the trunk of a tree into a great many longitudinal divisions, of more or less thickness according to the purposes they are intended to serve.

A very good method of seasoning planks of deal and fir is to throw them into salt water as soon as they are sawed, and keep them there three or four days, frequently turning them; in this case they will be rendered much harder, by drying afterwards in the air and sun; but neither this, nor any other method yet known, will preserve them from shrinking.

Rods of deal expand laterally, or cross the grain, in moist weather, and contract again in dry; and thence have been found to make an useful hygrometer.

DEAL, a town of Kent in England, lying between Dover and Sandwich, in E. Long. 1. 30. N. Lat. 51. 16. is supposed to be the *Dola* of Nennius, and is situated on a flat and level coast. This town, according to Dr Campbell, justifies an observation he had made in favour of situations of this kind, viz. that they are less liable than others to be injured by the sea. The town of Deal, as far as we are able to judge, except it may be the sea's sinking a little from it, is in much the same condition in which it ever was, even from the earliest accounts. The learned Dr Halley has proved, *Miscellanea Curiosa*, vol. iii. p. 426, that Julius Caesar landed here, August 26th, the year before the coming of Christ 55.—The great conveniency of landing has been of infinite service to the place: so that it is large and populous, divided into the upper and lower towns, adorned with many fair buildings, and is in effect the principal place in the Downs.

DEAN, an ecclesiastical dignitary in cathedral and collegiate churches, and head of the chapter.

Rural DEAN, called also *Arch-presbyter*, originally exercised jurisdiction over ten churches in the country, and afterwards became only the bishop's substitute, to grant letters of administration, probate of wills, &c.; to convocate the clergy; and to signify to them sometimes by letter the bishop's will, and to give induction to the archdeacon. Their office is now lost in that of the archdeacons and chancellors.

DEAN of a Monastery, was a superior established under the abbot, to ease him in taking care of ten monks; whence he was called *decanus*.

DEAN and Chapter, are the council of the bishop, to

assist him with their advice in affairs of religion, and also in the temporal concerns of his see. When the rest of the clergy were settled in the several parishes of each diocese, these were reserved for the celebration of divine service in the bishop's own cathedral; and the chief of them, who presided over the rest, obtained the name of *decanus* or *dean*, being probably at first appointed to superintend ten canons or prebendaries.

All ancient deans are elected by the chapter by *conge d'eslire* from the king, and letters missive of recommendation, in the same manner as bishops; but in those chapters that were founded by Henry VIII. out of the spoils of the dissolved monasteries, the deanery is donative, and the installation merely by the king's letters patent. The chapter, consisting of canons or prebendaries, are sometimes appointed by the king, sometimes by the bishop, and sometimes elected by each other.

The dean and chapter are the nominal electors of a bishop. The bishop is their ordinary and immediate superior; and has, generally speaking, the power of visiting them, and correcting their excesses and enormities. They had also a check on the bishop at common law; for till the statute 32 Hen. VIII. c. 28. his grant or lease would not have bound his successors, unless confirmed by the dean and chapter.

DEAN of Guild. See LAW, N^o clviii. II.

DEANERY, the office of a DEAN.—Deaneries and prebends may become void like a bishopric, by death, by deprivation, or by resignation either to the king or bishop. If a dean, prebendary, or other spiritual person, be made a bishop, all the preferments of which he was before possessed are void; and the king may present to them in right of his prerogative royal. But they are not void by the election, but only by the consecration.

DEATH, is generally considered as the separation of the soul from the body; in which sense it stands opposed to life, which consists in the union thereof.

Physicians usually define death by a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon; as respiration, sensation, &c.

An animal body, by the actions inseparable from life, undergoes a continual change. Its smallest fibres become rigid; its minute vessels grow into solid fibres no longer pervious to the fluids; its greater vessels grow hard and narrow; and every thing becomes contracted, closed and bound up: whence the dryness, immobility, and extenuation, observed in old age. By such means the offices of the minuter vessels are destroyed; the humours stagnate, harden, and at length coalesce with the solids. Thus are the subtlest fluids in the body intercepted and lost, the concoction weakened, and the reparation prevented; only the coarser juices continue to run slowly through the greater vessels, to the preservation of life, after the animal functions are destroyed. At length, in the process of these changes, death itself becomes inevitable, as the necessary consequence of life. But it is rare that life is thus long protracted, or that death succeeds merely from the decays and impairment of old age. Diseases, a long and horrid train, cut the work short.

The signs of death are in many cases very uncertain. If we consult what Winslow or Bruchier have said on this

Dean,
||
Death.

Death.

this subject, we shall be convinced, that between life and death the shade is so very undistinguishable, that even all the powers of art can scarcely determine where the one ends and the other begins. The colour of the visage, the warmth of the body, and suppleness of the joints, are but uncertain signs of life still subsisting; while, on the contrary, the paleness of the complexion, the coldness of the body, the stiffness of the extremities, the cessation of all motion, and the total insensibility of the parts, are but uncertain marks of death begun. In the same manner also, with regard to the pulse and breathing; these motions are so often kept under, that it is impossible to perceive them. By bringing a looking-glass near to the mouth of the person supposed to be dead, people often expect to find whether he breathes or not. But this is a very uncertain experiment: the glass is frequently sullied by the vapour of the dead man's body; and often the person is still alive, though the glass is no way tarnished. In the same manner, neither burning nor scarifying, neither noises in the ears nor pungent spirits applied to the nostrils, give certain signs of the discontinuance of life; and there are many instances of persons who have endured them all, and afterwards recovered without any external assistance, to the astonishment of the spectators. This ought to be a caution against hasty burials, especially in cases of sudden death, drowning, &c.

DEATH in Law. In law, there is a natural death and civil death: natural, where nature itself expires; civil, where a person is not actually dead, but adjudged so by law. Thus, if any person, for whose life an estate is granted, remains beyond sea, or is otherwise absent, seven years, and no proof made of his being alive, he shall be accounted naturally dead.

Brothers of DEATH, a denomination usually given to the religious of the order of St Paul, the first hermit. They are called *brothers of death*, *fratres a morte*, on account of the figure of a death's head, which they were always to have with them, in order to keep perpetually before them the thoughts of death. This order, by its constitutions made in 1620, does not seem to have been established long before Pope Paul V. Louis XIII. in 1621, permitted them to settle in France. The order was probably suppressed by Pope Urban VIII.

Law of DEATHBED. See LAW, N^o clxxxi. 38—41.

DEATH-Watch, in natural history, a little insect famous for a ticking noise, like the beat of a watch, which the vulgar have long taken for a presage of death in the family where it is heard: whence it is also called *pediculus*, *fatidicus*, *mortifaga*, *pulsatorius*, &c.

There are two kinds of death-watches. Of the first we have a good account in the Phil. Trans. by Mr Allen. It is a small beetle, 5-16ths of an inch long, of a dark-brown colour, spotted; having pellucid wings under the vagina, a large cap or helmet on the head, and two antennæ proceeding from beneath the eyes, and doing the office of proboscides. The part it beats withal, he observed, was the extreme edge of the face, which he chooses to call the upper-lip, the mouth being protracted by this bony part, and lying underneath out of view.

This account is confirmed by Dr Derham; with this difference, that instead of ticking with the upper-lip, he observed the insect to draw back its mouth, and beat with its forehead. That author had two death-

watches, a male and a female, which he kept alive in a box several months; and could bring one of them to beat whenever he pleased, by imitating its beating. By this ticking noise he could frequently invite the male to get up upon the other in the way of coition. When the male found he got up in vain, he would get off again, beat very eagerly, and then up again: Whence the ingenious author concludes those pulsations to be the way whereby these insects woo one another, and find out and invite each other to copulation.

The second kind of death-watch is an insect in appearance quite different from the first. The former only beats seven or eight strokes at a time, and quicker; the latter will beat some hours together without intermission; and his strokes are more leisurely, and like the beat of a watch. This latter is a small greyish insect, much like a louse when viewed with the naked eye.

It is very common in all parts of the house in the summer-months: it is very nimble in running to shelter, and shy of beating when disturbed; but will beat very freely before you, and also answer the beating, if you can view it without giving it disturbance, or shaking the place where it lies, &c. The author cannot say whether they beat in any other thing, but he never heard their noise except in or near paper. As to their noise, the same person is in doubt whether it be made by their heads, or rather snouts, against the paper; or whether it be not made after some such manner as grasshoppers and crickets make their noise. He inclines to the former opinion. The reason of his doubt is, that he observed the animal's body to shake and give a jerk at every beat, but could scarce perceive any part of its body to touch the paper. But its body is so small and near the paper, and its motion in ticking so quick, that he thinks it might be, yet he not perceive it. The ticking, as in the other, he judges to be a wooing act; as having observed another, after much beating, come and make offers to the beating insect, who, after some offers, left off beating, and got upon the back of the other. When they were joined, he left off again; and they continued some hours joined tail to tail, like dog and bitch in coition. Whether this insect changes its shape, and becomes another animal or not, he cannot say; though he has some cause to suspect that it becomes a sort of fly. It is at first a minute white egg, much smaller than the nits of lice; though the insect is near as big as a louse. In March it is hatched, and creeps about with its shell on. When it first leaves its shell, it is even smaller than its egg; though that be scarce discernible without a microscope. In this state it is perfectly like the mites in cheese. From the mite-state they grow gradually to their mature perfect state. When they become like the old ones, they are at first very small, but run about much more swiftly than before.

DEBENTURE, a term of trade used at the custom-house for a kind of certificate signed by the officers of the customs, which intitles a merchant exporting goods to the receipt of a bounty or draw-back. All merchandises that are designed to be taken on board for that voyage being entered and shipped, and the ship being regularly cleared out, and sailed out of port on her intended voyage, debentures may be made out from the exporter's entries, in order to obtain the draw-backs, allowances, bounties, or premiums; which debenture

Death,
Debenture.

Debenture
||
Decade.

debentures for foreign goods are to be paid within one month after demand. And in making out these debentures, it must be observed, that every piece of vellum, parchment, or paper, containing any debenture for drawing back customs or duties, must, before writing, be stamped, and pay a duty of 8d.

The forms of debentures vary according to the merchandise exported. In the execution of debentures for tobacco, it must be particularly observed, 1. That debentures for the same quantity may be made on one or more parchments. 2. That the exporter's oath must be printed, specifying whether he acts for himself or on commission. 3. If exported to any other foreign ports than Ireland, the word *Ireland* must be added to the oath after *Great Britain*. 4. That as no tobacco may be consumed on board of ships of war in Europe but what has paid full duties, and been manufactured in Great Britain, no drawback is to be allowed for tobacco exported in any man of war. 5. That the eight pounds *per* hoghead of 350 pounds, or more, allowed for draught at importation, must not be deducted on exportation. 6. That debentures for tobacco exported to Ireland must not be paid till a certificate be produced, testifying the landing thereof. 7. That no persons may swear to the exportation but such as are permitted to swear to debentures for other goods. In debentures for all other foreign goods, no person may be admitted to swear to the exportation but the true exporter, either as a proprietor, or who, being employed by commission, is concerned in the direction of the voyage. All kinds of debentures, before delivered or paid to the exporters, are entered into a separate book kept for that purpose by the collector and comptroller of the customs.

DEBITA FUNDI. See Law, No. clxvi. 1.

DEBITA Fructuum. See Law, No. clxx. 17.

DEBILITY, among physicians, a relaxation of the solids, occasioning oftentimes weaknesses and faintings.

DEBIR (anc. geog.), a sacerdotal city of Palestine, near Hebron; but neither distance, nor point of the compass on which it lies, can be determined. It was anciently called *Kariath-sepher* or *Kirjath-sepher*, and *Kirjath-sanna* (Joshua).—Another *Debir* in the tribe of Gad, beyond Jordan.

DEBRECHEN, a town of Upper Hungary, about 77 miles east of Buda. E. Long. 21. 10. N. Lat. 47. 45.

DEBRUIZED, in heraldry, a term peculiar to the English, by which is intimated the grievous restraint of any animal, debarred of its natural freedom, by any of the ordinaries being laid over it.

DEBT, in law, any thing due to another, whether it be money, goods, or services; or the action brought for recovering the same.

National DEBT. See FUNDS and NATIONAL Debt.

DEBTOR, a person who owes any thing to another; in contradistinction to creditor, which is he to whom the debt is owing.

DEBTOR, in merchants accounts. See BOOK-KEEPING.

DECADE, a word used by some old writers for the number ten, and *decades* for an enumeration by tens. The word is formed from the Latin *decas*, which is derived from a Greek word of the same import.

No. 98.

The word has been more peculiarly appropriated to the number of books, *q. d. decades*, into which the Roman History of Titus Livius is divided. Hence also came *decadal* arithmetic, the Decameron of Boccacio, &c.

DECAGON, in geometry, a plain figure with ten sides and ten angles.

DECAGYNIA (from *deka* ten, and *gyn* a woman), the name of an order, or secondary division, in the class decandria, of the sexual method, consisting of plants whose flowers are furnished with ten stamina and the same number of styles; which last are considered by Linnæus and the sexualists as the female organs of generation in plants. Neurada and American nightshade furnish examples.

DECALOGUE, the ten precepts or commandments delivered by God to Moses, after engraving them on two tables of stone.

The Jews, by way of excellence, call these commandments the *ten words*, from whence they had afterwards the name of *decalogue*: but it is to be observed, that they joined the first and second into one, and divided the last into two. They understand that against stealing to relate to the stealing of men, or kidnapping; alledging, that the stealing one another's goods or property is forbidden in the last commandment.

The emperor Julian objected to the decalogue, that the precepts it contained (those only excepted which concern the worship of false gods, and the observation of the sabbath) were already so familiar to all nations, and so universally received, that they were unworthy, for that very reason, to be delivered, by so great a legislator, to so peculiar a people. The church of Rome has struck the second commandment quite out of the decalogue; and to make their number complete, hath split the tenth into two: The reason of which may be easily conceived.

DECAN, a kingdom of Asia, in the peninsula on this side the Ganges, bounded on the south by the kingdom of Bismagar, on the west by the ocean, on the north by Mogulistan, and on the east by the mountains which separate it from Golconda.

DECANDRIA (*deka* ten, and *andros* a husband), Linnæus's tenth class, comprehending those hermaphrodite plants which bear flowers with ten stamina. See BOTANY, p. 430.

DECANTATION, among chemists, &c. the gently pouring off a liquor from its fæces, by inclining the lip or canthus of the vessel; whence the name.

DECANUS, in Roman antiquity, an officer who presided over the other ten officers, and was head of the contubernium, or serjeant of a file of soldiers.

DECAPOLIS (anc. geog.), a district beyond Jordan, almost all of it belonging to the half tribe of Manasseh; before the captivity, called *Bethsan*; but after occupied by heathens, who could not be driven out. It comprised, as the name denotes, ten principal cities on the other side the Jordan, if we except Scythopolis, which stood on this side, but its territory on the other.

DECAPROTI, DECEMPRIMI, in Roman antiquity, officers for gathering the tributes and taxes.

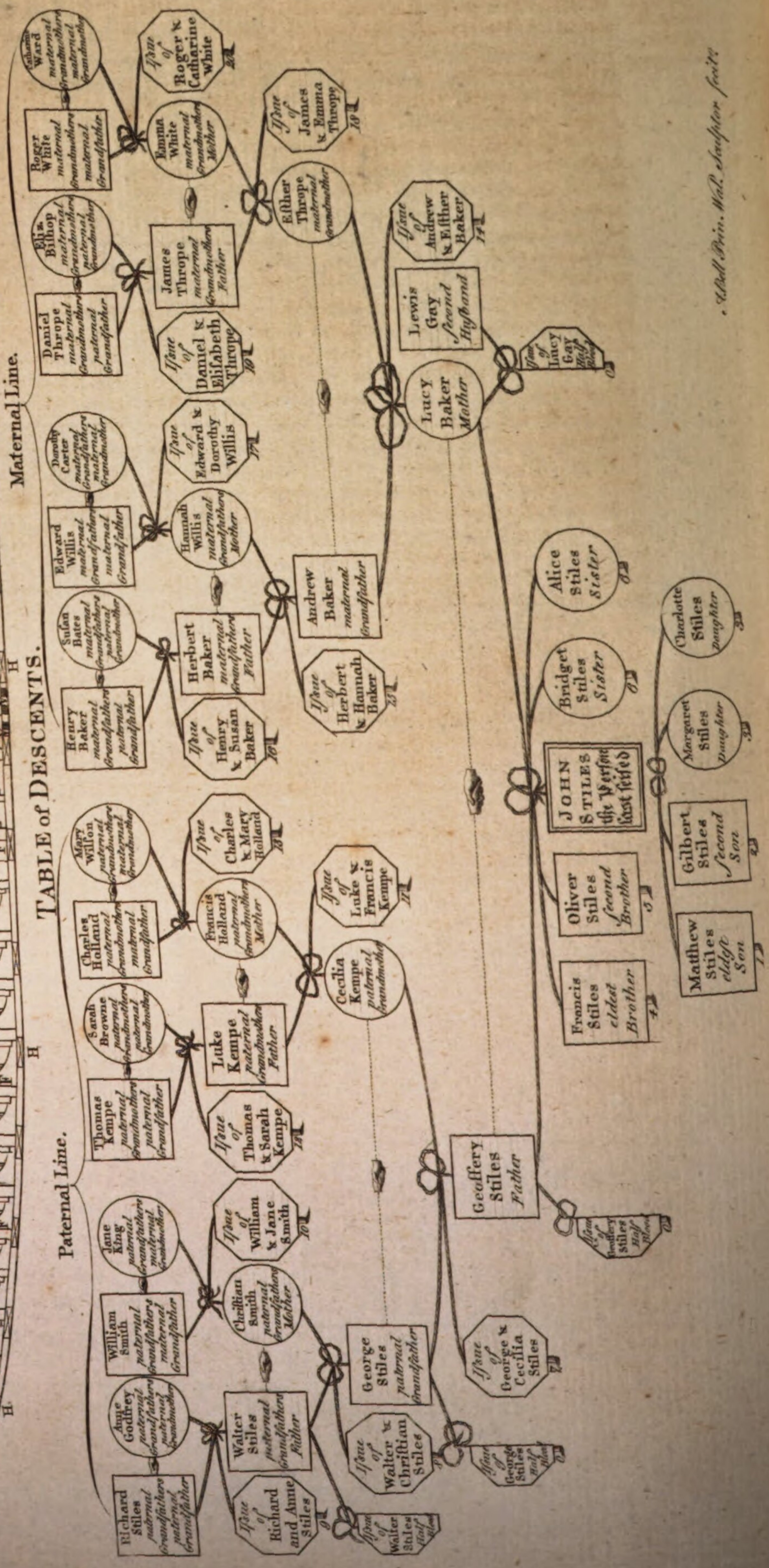
The decaproti were also obliged to pay for the dead, or to answer to the emperor for the quota parts of such as died out of their own estates.

DECASPERMUM, in botany; a genus of the monogynia order, belonging to the icolandria class of plants.

Decagon
||
Decaspermum.



TABLE of DESCENTS.



Decastyle plants. The calyx is a turbinated perianthium, quinquefid at the apex. The corolla has five roundish petals. The stamina are many filiform filaments, a little shorter than the corolla. The pericarpium is a dry, globular, decemlocular berry, with solitary egg-shaped seeds.

DECASTYLE, in the ancient architecture, a building with an ordnance of ten columns in front, as the temple of Jupiter Olympius was.

DECEIT, in law, a subtle trick or device, to which may be added all manner of craft and collusion, or underhand practice, used to defraud another, by any means whatever.

DECEMBER, the last month of the year, wherein the sun enters the tropic of Capricorn, and makes the winter solstice.

In Romulus's year, December was the tenth month, whence the name, *viz.* from *decem* "ten:" for the Romans began their year in March.

The month of December was under the protection of Vesta. Romulus assigned it 30 days, Numa reduced it to 29, which Julius Cæsar increased to 31.

Under the reign of Commodus, this month was called, by way of flattery, *Amazonius*, in honour of a courtesan whom that prince passionately loved, and had got painted like an Amazon: but it only kept the name during that emperor's life.

At the latter end of this month they had the *juveniles ludi*; and the country people kept the feast of the goddess Vacuna in the fields, having then gathered in their fruits and sown their corn; whence seems to be derived our popular festival called *harvest-home*.

DECEN PAGI (anc. geog.) a town of Belgica: Now *Dieuse*, in Lorrain, on the rivulet Seille or Selna, near the lake Lindre, about seven German miles to the north-east of Nancy.

DECEMPEDA, Δικατοῦς, *ten-foot rod*, an instrument used by the ancients in measuring.

The decempeda was a rule or rod divided into ten feet; whence its name, from *decem* "ten," and *pes pedis*, "foot." The foot was subdivided into twelve inches, and each inch into ten digits. The decempeda was used both in measuring of land, like the chain among us; and by architects to give the proper dimensions and proportions to the parts of their buildings, which use it still retains. Horace, lib. ii. od. 15. blaming the magnificence and delicacy of the buildings of his time, observes that it was otherwise in the times of Romulus and Cato; that in the houses of private persons there were not then known any porticoes measured out with the decempeda, nor turned to the north to take the cool air.

DECEMVIRI, ten magistrates of absolute authority among the Romans. The privileges of the patricians raised dissatisfaction among the plebeians; who, though freed from the power of the Tarquins, still saw that the administration of justice depended upon the will and caprice of their superiors, without any written statute to direct them, and convince them that they were governed with equity and impartiality. The tribunes complained to the senate, and demanded that a code of laws might be framed for the use and benefit of the Roman people. This petition was complied with; and three ambassadors were sent to Athens and all the other Grecian states, to collect the laws of So-

lon and of all the other celebrated legislators of Greece.

Upon the return of the commissioners it was universally agreed, that ten new magistrates called *Decemviri* should be elected from the senate to put the project into execution. Their power was absolute, all other offices ceased after their election, and they presided over the city with regal authority. They were invested with the badges of the consul, in the enjoyment of which they succeeded by turns; and only one was preceded by the fasces, and had the power of assembling the senate and confirming decrees. The first decemvirs were Appius Claudius, T. Genutius, P. Sextus, Sp. Veturius, C. Julius, A. Manlius, Ser. Sulpitius, Pluricius, T. Romulus, Sp. Posthumus, in the year of Rome 302. Under them the laws, which had been exposed to public view, that every citizen might speak his sentiments, were publicly approved of as constitutional, and ratified by the priests and augurs in the most solemn and religious manner. They were ten in number, and were engraved on tables of brass; two were afterwards added, and they were called the laws of the twelve tables, *leges duodecim tabularum*, and *leges decemvirales*. The decemviral power, which was beheld by all ranks of people with the greatest satisfaction, was continued; but in the third year after their creation the decemvirs became odious on account of their tyranny, and the attempt of Ap. Claudius to ravish Virginia totally abolished that office. The people were so exasperated against them, that they demanded them from the senate to burn them alive. Consuls were again appointed, and tranquillity re-established in the state. There were other officers in Rome called decemvirs, who were originally appointed in the absence of the prætor to administer justice. Their appointment became afterwards necessary, and they generally assisted at sales, called *subhastationes*, because a spear, *hasta*, was fixed at the door of the place where the goods were exposed to sale. They were called *decemviri litibus judicandis*. The officers whom Tarquin appointed to guard the Sibylline books were also called *decemviri*. They were originally two in number, called *duumviri*, till the year of Rome 388, when their number was increased to ten, five of which were chosen from the plebeians and five from the patricians. Sylla increased their number to fifteen, called *quindecimviri*.

DECENNALIA, ancient Roman festivals, celebrated by the emperors every tenth year of their reign, with sacrifices, games, and largesses for the people. The emperor Augustus first instituted these solemnities, in which he was imitated by his successors. At the same time the people offered up vows for the emperor, and for the perpetuity of the empire; which were therefore called *vota decennalia*. Augustus's view in establishing the decennalia was to preserve the empire and the sovereign power without offence or restraint to the people. For during the celebration of this feast, that prince used to surrender up all his authority into the hands of the people; who, filled with joy, and charmed with the goodness of Augustus, immediately delivered it him back again.

DECHALES (Claudius Francis Milliet), an excellent mathematician, mechanic, and astronomer, descended from a noble family, and born at Chamberry in 1611. His principal performances are an edition of Euclid's elements of geometry, in which the unservice-

Decemviri

Dechales.

Deciates
||
Decius.

able propositions are rejected, and the uses of those retained, annexed; a discourse on fortification; and another on navigation. These with others have been collected first in 3 vols folio, and afterwards in 4, under the title of *Mundus Mathematicus*: being indeed a complete course of mathematics. He died in 1678, professor of mathematics in the university of Turin.

DECIATES, or *Deciarii*, (anc. geog.) a people of Gallia Narbonensis, next the borders of Italy, on the Mediterranean. Now the diocese of Grace and Antibes. *Deciatum oppidum*, was a town situated between Antibes and Nice.

DECIDUOUS, an appellation chiefly used in respect of plants: thus, the calyx or cup of a flower is said to be *deciduous*, when it falls along with the flower-petals; and, on the contrary, it is called *permanent*, when it remains after they are fallen. Again, deciduous leaves are those which fall in autumn; in contradistinction to those of the ever-greens, which remain all the winter. See DEFOLIATION.

DECIL, in astronomy, an aspect or position of two planets, when they are distant from each other a tenth part of the zodiac.

DECIMAL ARITHMETIC, the art of computing by decimal fractions. See ARITHMETIC.

DECIMATION, a punishment inflicted by the Romans, on such soldiers as quitted their posts, or behaved themselves cowardly in the field. The names of the guilty were put into an urn or helmet, and as many were drawn out as made the tenth part of the whole number, and those were put to the sword, and the others saved. This was called *decimare*; a word of the ancient Roman militia, who, to punish whole legions when they had failed in their duty, made every tenth soldier draw lots, and put him to death for an example to the others.

As the Romans had their *decimatio*, they had also the *vicefimatio*, and even *centesimatio*, when only the 20th or 100th man suffered by lot.

DECIPHERING, the art of finding the alphabet of a cipher. For the art both of Ciphering and Deciphering, see the article CIPHER.

DECIUS Mus, a celebrated Roman consul, who after many glorious exploits, devoted himself to the gods manes for the safety of his country in a battle against the Latins, about 340 years before the Augustan age. His son Decius imitated his example, and devoted himself in like manner in his fourth consulship, when fighting against the Gauls and Samnites. His grandson also did the same in the war against Pyrrhus and the Tarentines. This action of devoting one's self was of infinite service to the state. The soldiers were animated by the example, and induced to follow with intrepidity a commander who, arrayed in an unusual dress, and addressing himself to the gods with solemn invocation, rushed into the thickest part of the enemy to meet his fate.

DECIUS (Cn. Metius, Q. Trajanus,) a native of Pannonia, sent by the emperor Philip to appease a sedition in Mœsia. Instead of obeying his master's command, he assumed the imperial purple, and soon after marched against him, and at his death became the only emperor. He signalized himself against the Persians; and when he marched against the Goths, he pushed his horse into a deep marsh, from which he could not

extricate himself, and he perished with all his army by the darts of the barbarians, A. D. 251, after a reign of two years.

DECK of a SHIP (from *decken*, Dan. to cover); the planked floors of a ship, which connect the sides together, and serve as different platforms to support the artillery and lodge the men, as also to preserve the cargo from the sea in merchant vessels. As all ships are broader on the lower deck than on the next above it, and as the cannon thereof are always heaviest, it is necessary that the frame of it should be much stronger than that of the others; and for the same reason the second or middle deck ought to be stronger than the upper deck or fore-castle.

Ships of the first and second rates are furnished with three whole decks, reaching from the stem to the stern, besides a fore-castle and a quarter-deck, which extends from the stern to the main-mast; between which and the fore-castle a vacancy is left in the middle, opening to the upper deck, and forming what is called the *waist*. There is yet another deck above the hinder or aftmost part of the quarter-deck, called the *poop*, which also serves as a roof for the captain's cabin or couch.

The inferior ships of the line of battle are equipped with two decks and a half; and frigates, sloops, &c. with one gun-deck and a half, with a spar-deck below to lodge the crew.

The decks are formed and sustained by the beams, the clamps, the water-ways, the carlings, the ledges, the knees, and two rows of small pillars called *stanchions*, &c. See those articles.

That the figure of the deck, together with its corresponding parts, may be more clearly understood, we have exhibited a plan of the lower-deck of a 74 gun ship in Plate CLVI. And as both sides of the deck are exactly similar, the pieces by which it is supported appear on one side, and on the other side the planks of the floor of which it is composed, as laid up on those upper pieces.

A, the principal or main hatch-way.

B, the stern post.

C, the stem.

D, the beams, composed of three pieces, as exhibited by D, in one of which the dotted lines show the arrangement of one of the beams under the other side of the deck.

E, part of the vertical or hanging knees.

F, the horizontal or lodging knees, which fasten the beams to the sides.

G, the carlings, ranging fore and aft, from one beam to another.

H, the gun-ports.

I, the pump dales, being large wooden tubes, which return the water from the pumps into the sea.

K, the spurs of the beams, being curved pieces of timber serving as half-beams to support the decks, where a whole beam cannot be placed on account of the hatchways.

L, the wing-transom, which is bolted by the middle to the stern-post, and whose ends rest upon the fashion-pieces.

M, the bulk-head or partition, which incloses the manger, and prevents the water which enters at the hawse-holes from running aft between decks.

N N,

Deck.

Deck,
Declama-
tion.

N N, the fore hatch-way.
O O, the after hatch-way.
P, the drum-head of the gear capstern.
P p, the drum-head of the main capstern.
Q, The wing-transom knee.
R, one of the breast-hooks under the gun-deck.
S, the breast-hook of the gun-deck.
T T, the station of the chain-pumps.
V, the breadth and thickness of the timbers at the height of the gun-deck.
U U, scuttles leading to the gunner's store-room, and the bread-room.
W, the station of the fore-mast.
X, the station of the main-mast.
Y, the station of the mizen-mast.
Z, the ring-bolts of the decks, used to retain the cannon whilst charging.
a a, The ring-bolts of the sides whereon the tackles are hooked that secure the cannon at sea.
c a a d, The water ways, through which the scupper holes are pierced, to carry the water off from the deck into the sea.

b b, Plan of the foremost and aftmost cable-bits, with their cross-pieces g g, and their standards e e.

Thus we have represented on one side all the pieces which sustain the deck with its cannon; and on the other side, the deck itself, with a tier of 32 pounders planted in battery thereon. In order also to show the use of the breeching and train-tackle, one of the guns is drawn in as ready for charging.

The number of beams by which the decks of ships are supported, is often very different, according to the practice of different countries; the strength of the timber of which the beams are framed; and the services for which the ship is calculated.

As the deck which contains the train of a fire-ship is furnished with an equipage peculiar to itself, the whole apparatus is particularly described in the article *Fire-Ship*.

Flush-Deck implies a continued floor laid from stem to stern, upon one line, without any stops or intervals.

Half-Deck, a space under the quarter deck of a ship of war, contained between the foremost bulk-head of the steerage and the fore-part of the quarter-deck. In the colliers of Northumberland the steerage itself is called the *half-deck*, and is usually the habitation of the crew.

DECLAMATION, a speech made in public, in the tone and manner of an oration, uniting the expression of action to the propriety of pronunciation, in order to give the sentiment its full impression upon the mind. According to the manners and customs of the present age, public harangues are made only, 1. In the pulpit. 2. In the senate, in council, or other public assembly. 3. By public professors. 4. On the theatre.

I. With regard to the declamation of the pulpit, the dignity and sanctity of the place, and the importance of the subject, require the preacher to exert the utmost powers of his voice to produce a pronunciation that is perfectly distinct and harmonious, and that he observe a deportment and action which is expressive and graceful. No man, therefore, who is destitute of a voice, should ascend the pulpit, and there act the part of a

pantomime before his audience. The preacher should not, however, roar like a common cryer, and rend the ear with the voice of thunder; for such kind of declamation is not only without meaning and without persuasion, but highly incongruous with the meek and gentle expressions of the gospel. He should likewise take particular care to avoid a monotony; his voice should rise from the beginning, as it were by degrees, and its greatest strength should be exerted in the application. Each inflexion of the voice should be adapted to the phrase, and to the meaning of the words; and each remarkable expression should have its peculiar inflexion. The dogmatic requires a plain, uniform tone of voice only; and the menaces of the gospel demand a greater force than do its promises and rewards: but the latter should not be pronounced in the soft tone of a flute, nor the former with the loud sound of a trumpet. The voice should still retain its natural tone in all its various inflexions. Happy is that preacher, to whom nature has given a voice that is at once strong, flexible, and harmonious.

An air of complacency and benevolence, as well as devotion, should be constantly visible in the countenance of the preacher. But every appearance of affectation must be carefully avoided: for nothing is so disgusting to an audience, as even the semblance of dissimulation. Eyes constantly rolling, turned towards heaven, and streaming with tears, rather denote a hypocrite, than a man possessed of the real spirit of religion, and that feels the true import of what he preaches. An air of affected devotion infallibly destroys the efficacy of all that the preacher can say, however just and important it may be. On the other hand, he must avoid every appearance of mirth or raillery, or of that cold unfeeling manner which is so apt to freeze the hearts of his hearers.

The body should be in general erect, and in a natural and easy attitude. The perpetual movement, or contortion, of the body, has a ridiculous effect in the pulpit, and makes the figure of a preacher and a harlequin much too similar. But on the other hand, he ought not to remain constantly upright and motionless, like a speaking statue.

The motions of the hands give a strong expression to a discourse; but they should be constantly decent, grave, noble, and expressive. The preacher, who is incessantly in action, who is perpetually clapping his hands, or who menaces with a clenched fist, or counts his arguments on his fingers, will only excite mirth among his auditory. In a word, declamation is an art that the sacred orator should study with the utmost assiduity. The design of a sermon is to convince, to affect, and to persuade. The voice, the countenance, and the action, which are to produce this triple effect, are therefore the objects to which the preacher should particularly apply himself.

II. The declamation of a minister or statesman in the senate, in council, or other public assembly, is of a more unconfined nature. To persuade, to move the passions, and gain an ascendancy in a public assembly, the orator should himself feel the force of what he says, and the declamation should only express that internal sensation. But nothing should be carried to excess. A suavity in the tone of voice, a dignity of deportment, a graceful action, and a certain tranquility of countenance,

Declama-
tion.*Bielfield's
Elements.*

Declama-
tion.

nance, should constantly accompany the statesman when he speaks in public, even when he is most earnestly engaged in debate, or when he is addressing his sovereign in person. A pleasing tone of voice and a distinct pronunciation, prejudice the hearers greatly in the speaker's favour. A young man may improve these to a surprising degree. Demosthenes, who had a natural impediment in his speech, was accustomed to go to the sea-shore, and partly filling his mouth with pebbles, he declaimed with a loud voice. The stones by degrees gave a volubility to his tongue, and the roaring of the waves reconciled him insensibly to the noise of the multitude.

III. The principal object of a public professor is the instruction of the studious youth: for which purpose, he is to convince and persuade. Every tone of voice, every expression of the countenance, or action of the body, which can produce this effect by enforcing the words, should therefore be employed by those who are to teach the sciences. There is, moreover, one very essential reflection which every professor ought to make, and which is, that the chair from which he harangues is surrounded by young students, naturally possessed with vivacity, not unfrequently ludicrous, and for the most part previously instructed in the preparatory sciences. They are therefore constantly inclined to criticise, to jest, and to ridicule: for which reason, the professor should endeavour to inspire them with respect and attention, by a grave, commanding, and venerable countenance, and carefully avoid all appearance of grimace in his action, and every kind of affectation in his discourse, that he may not afford the least opportunity of pleasantry.

IV. We are now come to *theatric declamation*.

1. This was very different among the ancients from what it is, and ought to be, with us, from the nature of the thing itself, and from the difference of circumstances. Numberless passages in Quintilian, and other ancient historians, critics, grammarians, and commentators, evidently prove, that the ancient dramatic declamation was subservient to the rules of the musical rhythmus; and by this, according to Aristides*, their action, as well as recital, was regulated. But to explain this seeming paradox, it will be necessary to make here some preliminary remarks. The ancients gave a much more extensive signification than we do to the word *music* (*musica*), which they derived from the muses, or at least from some of them. It is for this reason that the same Aristides and Quintilian define it to be "An art that teaches all that relates to the use of the voice, and the manner of performing all the motions of the body with grace." *Ars decoris in vocibus & motibus*. Therefore poetry, declamation, dancing, pantomimes, and many other gestures and exercises, were subservient to this art.

2. That part of general music which taught the art of declamation and gesture according to the rules of an established method (and which we perform by instinct, or at most by the aid of common sense), was distinguished by the name of *hypocritic music*: and this musical art was called by the Greeks *orchesis*; and by the Romans *saltatio*. It was, however, so far from being an advantage to the ancients to have had this art, which we have not, that it was, on the contrary, a mark of great imperfection. For, in the first place, it was an

instance of high absurdity to represent a tragedy, or comedy, before an audience of twenty thousand people, the far greatest part of whom could neither hear nor see what passed to any good purpose, unless they were possessed of organs which we have not. The theatres of London and Paris may conveniently contain about a thousand persons; and that is found sufficient in the most populous cities, where there are several places of entertainment on the same day, and where the people are reasonable enough to succeed each other in their diversions. As the features of the face could not be distinguished at so great a distance, and still less the alteration of countenance in order to represent the different passions, they were obliged to have recourse to *masks*; a wretched, childish invention, that destroyed all the strength and variety of expression. Their action became extravagant; and, at the same time, subservient to a regular mechanism, which prevented all the refinement, and all the pleasure of surprise, in the performance; and must have had an effect horribly disagreeable to those who were placed near the stage.

3. The egregious imperfection of their language likewise, which consisted of syllables long and short, whose duration was determined by a set measure of time, and their manner of tuning these syllables, after the method of the *orchesis* of the Greeks, was another disadvantage. For by this means they determined by notes or characters placed after the long and short syllables, not only the nature, but the duration, of each action. Now, nothing could be more affected, more constrained and disgusting, than such a method of declaiming. How far superior in this respect are the moderns, who consult nature alone in their *theatric declamation*; who can make the audience hear each sigh; who can accompany it with a proper attitude; who can incessantly vary their action; who can seize the lucky moment, and make the countenance fully express the sensations of the mind! Nature does all here; and art, infinitely inferior to nature, did all among the ancients. Modern declamation cannot be subservient to a musical rhythmus, seeing we speak rapidly, and without affectation. Our actors learn their art without art, from nature itself, assisted by reflection; and they arrive at a degree of excellence infinitely greater than that of the ancients, by a method far more simple, and by efforts incomparably more easy.

4. We do not, moreover, precisely know what the *theatric declamation* of the ancients was; nor what were the musical instruments which accompanied that declamation. The title to the *Eunuch* of Terence says, for example, "that Flaccus, the freedman of Claudius, made the music of that piece, in which he employed the two flutes, the right and the left." These flutes, it is likely, gave the tone to the actor, which must have had a very odd effect on the audience. Most of the ancient pieces have similar titles. They who would be particularly informed of the art of declaiming among the Greeks and Romans, may read to advantage the *Critical Reflections on Poetry and Painting* by the Abbe du Bos. The third part of that work consists entirely of learned researches and ingenious reflections on this silly practice of the ancients. But as this art has happily no place in modern declamation, and can at best serve only to make a parade

Declama-
tion.* *De Musica*
lib. 1.

of

Declamati-
on.

of erudition, we shall say no more of it, but pass to matters of real utility.

5. We think there is good reason to believe, moreover, that the most polished nations of modern Europe do not accompany their discourses in general with so many gesticulations, as did the Greeks, the Romans, and other inhabitants of warm climates. They appear to have found the method of animating a discourse, and giving it an expression, by the simple inflections of the voice, and by the features of the countenance; which is far more decent, more just and rational, than all those contortions which perpetually derange the natural attitude of the body and its members, and give the speaker the air of a harlequin.

6. *Expression*, therefore, forms at once the essence and the end of declamation; and the means of producing it consists in a pronunciation that is sonorous, distinct, and pleasing, supported by an action that is decent and proper to the subject. If the best dramatic poet has need of a good declaimer or actor to make his writing produce its proper effect, the actor has likewise need of a good poet to enable him to please and affect by his action: for it is to little purpose that he endeavours to charm his auditory by uniting, with nature, all the powers of art, if the poet has not furnished him with sentiments that are rational and affecting.

7. The actor, in studying his part before a large mirror, where he can see his whole figure, in order to determine the most proper expression for every thought, should consult nature, and endeavour to imitate her. But, in this imitation, he should take care not to make too servile a copy. He has this to observe, in common with his colleagues, the masters in all the polite arts: The theatre is intended to exhibit an imitation of nature, and not nature itself. Tragedy and comedy form pictures of human life; but these pictures are also pieces of perspective, which require strokes somewhat stronger than nature, that they may be discerned at a distance. The actor is elevated to a considerable height from the ground; he is surrounded by scenery, he is separated from the audience by the orchestra, and he speaks in verse: all this is not natural: but the spectator is to accede to this necessary illusion, in order to promote his own pleasure, which would not be so great as it is were all these matters otherwise disposed. Declamation, therefore, should somewhat exceed, but never lose sight of, nature.

8. The tone of the actor's voice should be natural, but regulated by the extent of the theatre; sufficiently loud to be heard by all the audience, but not so violent as to rend their ears. A pure and graceful pronunciation, without any provincial accent, is likewise a great merit in an actor; and he should also habituate himself to speak in a manner perfectly distinct. It is a capital point in the pronouncing of verse, not to separate the two hemistichs, by resting too long on the *caesura* in the middle, or dwelling on the end of each hemistich: for, by so doing, the actor falls into a monotony, an insufferable uniformity of cadence, in a piece that consists of some thousand verses. The gradations of the voice demand also a very judicious observance. The speaker, who begins in a high tone, will find it very difficult to sustain it through the whole

piece; and he, who clamours incessantly, will find his lungs fail him in those parts where the vehemence of passion requires the strongest efforts. If we may be allowed the expression, the strongest touches, the boldest figures, will not there stand out from the picture in a striking manner.

9. The deportment of an actor should be constantly graceful, decent, and proper to the character he represents. An old man has a different position of body from a young *petit maitre*; an aged queen from a young princess; a noble gallant from a valet de chambre. A rational observance of nature, and an imitation of the best actors, are here the surest guides. The same may be said of the action of the hands, the theatrical step, &c. An inanimated figure, a body in the position of a statue, and hands immovable, are as displeasing in the scene, as a player whose incessant gesticulation resembles the action of a puppet.

10. Every actor who aspires to make his art something more than merely mechanical, will begin by enabling himself readily to repeat his part, that the defect of his memory may not embarrass his action. When he is so far a master of it, he will make it the subject of serious reflection in his closet; endeavour to seize the true sense of the author; and to find out that expression of each sentiment and passion, which is the most natural, the most striking, and best adapted to the stage; and which he will cultivate by repeated essays, till he is able to render it in its full force.

DECLARATORY ACTION. See LAW, N^o clxxxii. 21.

DECLENSION, in grammar, an inflection of nouns according to their divers cases; as nominative, genitive, dative, &c. See GRAMMAR.

DECLINATION, in astronomy, the distance of any celestial object from the equinoctial, either northward or southward. It is either true or apparent, according as the real or apparent place of the object is considered. See ASTRONOMY, N^o 409, 410.

DECLINATION of the Sea Compass or Needle, is its variation from the true meridian of any place.

DECLINATION of a Plane or Wall, in dialling, is the horizontal arch contained between the plane and the prime vertical circle, if you reckon from east to west; or between the meridian and the plane, reckoning from north to south. Many ways are used for finding this declination: but the most easy and practicable is by a declinator. See DECLINATOR.

DECLINATOR, or DECLINATORY, an instrument chiefly used in practical dialling, for taking the declinations, inclinations, or reclinations of the planes on which the dials are to be delineated. See DIALING, N^o 24, 25.

DECLINATURE of JUDGES. See LAW, N^o clvi. 12.

DECLIVITY denotes the reverse of ACCLIVITY.

DECOCTION, usually signifies either the action of boiling a substance in water, or the water itself in which the substance has been boiled. It is only applicable to matters containing some principles soluble in water: such particularly are animal and vegetable matters. Decoction ought not to be used with such substances as contain any volatile principles, as they would

Declarato-
ry.
Decoction.

Decollation
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Decoration.

would be dissipated in the air during the process. But it may be safely used, nay even becomes necessary, when the matters to be treated are solid, and of a close and compact texture; because then the water could not extract its principles, without a boiling heat. Most soft animal matters, as flesh, skin, tendons, may be conveniently boiled in water; because they contain no principle volatile with a boiling heat. Water extracts from them nothing but a gelatinous substance, and some oily parts which float on the surface of the water. All vegetable matters which are inodorous, and particularly those which are hard, as roots, barks, &c. are generally boiled, when an extraction of their principles by water is required.—To this rule, however, there are some exceptions. Peruvian bark, for instance, gives its strength to cold water better than to such as is boiling hot. Many other vegetables also have the same property of yielding less to boiling than to cold water. And therefore a general rule may be established, that decoction ought not to be employed but when absolutely necessary; that is, when the same principles, or the same quantities of those principles, cannot be obtained by an infusion, and that without heat, if it can be so done, considering that the proximate principles of vegetables are generally so delicate, and so susceptible of change and decomposition, that frequently the most gentle heat changes much their nature and properties.

DECOLLATION, BEHEADING, a term seldom used but in the phrase *decollation* of St John Baptist; which denotes a painting, wherein is represented the Baptist's head struck off from his trunk; or the feast held in honour of that martyr.

DECOMPOSITION, in chemistry, usually signifies the disunion or separation of the constituent parts of bodies.—It differs from mere mechanical division, in that when a body is chemically decomposed, the parts into which it is resolved are essentially different from the body itself; but though a mechanical force is applied to it ever so long, or with ever so much violence, the minutest particles into which the body may be reduced, still retain their original nature.—Thus, for example, though we suppose nitre, or any other salt, to be reduced to ever so fine powder, each particle retains the nature of nitre, as much as the largest unpounded mass; but if oil of vitriol is applied, a decomposition takes place, and one of the component parts of the nitre rises in the form of a smoking acid spirit, which never could have been suspected to lie hid in the mild neutral salt.

DECORATION, in architecture, any thing that adorns and enriches a building, church, triumphal arch, or the like, either without side or within.

The orders of architecture contribute greatly to the decoration; but then the several parts of those orders must have their just proportions, characters, and ornaments; otherwise the finest order will bring confusion rather than richness. See ARCHITECTURE.

Decorations in churches are paintings, vases, festoons, &c. occasionally applied to the walls; and with so much conduct and discretion, as not to take off any thing from the form of the architecture: as is much practised in Italy at the solemn feasts.

DECORATION is more particularly applied to the Decoration
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Decoy.

scenes of theatres. In operas, and other theatrical performances, the decorations must be frequently changed conformably to the subject.

The ancients had two kinds of decorations for their theatres: the first, called *versatiles*, having three sides, or faces, which were turned successively to the spectators: the other called *ductiles*, showing a new decoration by drawing or sliding another before it. This latter sort is still used, and apparently with much greater success than among the ancients, who were obliged to draw a curtain whenever they made a change in the decoration; whereas on our stage the change is made in a moment, and almost without being perceived.

DECORUM, in architecture, is the suitableness of a building, and the several parts and ornaments thereof, to the station and occasion.

DECOUPLE, in heraldry, the same as uncoupled; thus a chevron decouple is a chevron wanting so much of it towards the point, that the two ends stand at a distance from one another, being parted and uncoupled.

DECOY, in naval affairs, a stratagem employed by a ship of war to betray a vessel of inferior force into an uncautious pursuit, till she has drawn her within the range of her cannon, or what is called within *gunshot*. It is usually performed by painting the stern and sides in such a manner as to disguise the ship, and represent her either much smaller and of inferior force, or as a friend to the hostile vessel, which she endeavours to ensnare, by assuming the emblems and ornaments of the nation to which the stranger is supposed to belong. When she has thus provoked the adversary to chase, in hopes of acquiring a prize, she continues the decoy, by spreading a great sail, as endeavouring to escape; at the same time that her course is considerably retarded by an artful alteration of her trim till the enemy approaches. Decoying is also performed to elude the chase of a ship of a superior force in a dark night, by throwing out a lighted cask of pitch into the sea, which will burn for a considerable time and misguide the enemy. Immediately after the cask is thrown out, the ship changes her course, and may easily escape, if at any tolerable distance from the foe.

DECOY, among fowlers, a place made for catching wild-fowl. A decoy is generally made where there is a large pond surrounded with wood, and beyond that a marshy and uncultivated country: if the piece of water is not thus surrounded, it will be attended with the noise and other accidents which may be expected to frighten the wild-fowl from a quiet haunt, where they mean to sleep, during the day-time, in security. If these noises or disturbances are wilful, it hath been held that an action will lie against the disturber.—As soon as the evening sets in, the decoy rises (as they term it), and the wild-fowl feed during the night. If the evening is still, the noise of their wings, during their flight, is heard at a very great distance, and is a pleasing though rather melancholy sound. This rising of the decoy in the evening, is in Somersetshire called *radding*.

The

Decoy.

The decoy-ducks are fed with hempseed, which is thrown over the skreens in small quantities, to bring them forwards into the pipes or canals, and to allure the wild fowl to follow, as this seed is so light as to float.

There are several *pipes*, as they are called, which lead up a narrow ditch that closes at last with a funnel-net. Over these pipes (which grow narrower from their first entrance) is a continued arch of netting suspended on hoops. It is necessary to have a pipe or ditch for almost every wind that can blow, as upon this circumstance it depends which pipe the fowl will take to; and the decoy man always keeps on the leeward side of the ducks, to prevent his effluvia reaching their sagacious nostrils. All along each pipe, at certain intervals, are placed skreens made of reeds, which are so situated, that it is impossible the wild-fowl should see the decoy-man, before they have passed on towards the end of the pipe, where the purse-net is placed. The inducement to the wild-fowl to go up one of these pipes is, because the decoy-ducks trained to this lead the way, either after hearing the whistle of the decoy-man, or enticed by the hempseed; the latter will dive under water whilst the wild-fowl fly on, and are taken in the purse.

It often happens, however, that the wild-fowl are in such a state of sleepiness and dozing, that they will not follow the decoy-ducks. Use is then generally made of a dog, who is taught his lesson: he passes backwards and forwards between the reed skreens (in which are little holes, both for the decoy-man to see, and the little dog to pass through); this attracts the eye of the wild-fowl, who, not choosing to be interrupted, advance towards the small and contemptible animal, that they may drive him away. The dog all the time, by the direction of the decoy-man, plays among the skreens of reeds, nearer and nearer the purse-net; till at last, perhaps, the decoy-man appears behind a skreen, and the wild-fowl not daring to pass by him in return, nor being able to escape upwards on account of the net-covering, rush on into the purse net. Sometimes the dog will not attract their attention, if a red handkerchief, or something very singular, is not put about him.

The general season for catching fowl in decoys, is from the latter end of October till February: the taking of them earlier is prohibited by an act 10 *Geo. II.* c. 32. which forbids it from June 1st to October 1st, under the penalty of five shillings for each bird destroyed within that space.

The Lincolnshire decoys are commonly set at a certain annual rent, from 5 to 20 pounds a year: and there is one in Somersetshire that pays 30l. The former contribute principally to supply the markets in London. Amazing numbers of ducks, wigeons, and teal, are taken: by an account sent us * of the number caught a few winters past, in one season, and in only ten decoys, in the neighbourhood of Wainfleet, it appeared to amount to 31,200, in which are included several other species of ducks: it is also to be observed, that, in the above particular, wigeon and teal are reckoned but as one, and consequently sell but at half price of the ducks. This quantity makes them so cheap on the spot, that we have been assured, several decoy-men would be content to contract for years to deliver their ducks at Boston, for 10d. per couple. The account of

the numbers here mentioned, relates only to those that were sent to the capital.

It was customary formerly to have in the fens an annual *driving* of the young ducks before they took wing. Numbers of people assembled, who beat a vast tract, and forced the birds into a net placed at the spot where the sport was to terminate. A hundred and fifty dozens have been taken at once: but this practice being supposed to be detrimental, has been abolished by act of parliament.

DECREE, an order made by a superior power for the regulation of an inferior.

DECREE, in the civil law, is a determination which the emperor pronounces upon hearing a particular cause between the plaintiff and defendant.

DECREEs of Councils, are the laws made by them, to regulate the doctrine and policy of the church.

DECREEs in Chancery, are the determination of the lord-chancellor, upon a full hearing of the merits of a cause.

DECREET, in the law of Scotland, a final decree or judgment of the lords of session, from which an appeal only lies to parliament.

DECREET-Arbitral, in Scots law, the sentence or judgment of one to whom parties voluntarily submit the determination of any question betwixt them *.

DECREMENT, in heraldry, signifies the wane of the moon from the full to the new. The moon in this state is called *moon decrescant*, or in *decours*; and when borne in coat armour, faces to the left side of the escutcheon, as she does to the right side when in the increment.

DECREPITATION, in chemistry, signifies the quick separation of the parts of a body, occasioned by a strong heat, and accompanied with noise and crackling. This effect is most frequently produced by water contained betwixt the parts of the decrepitating body, when these parts have a certain degree of adhesion together. This water being quickly reduced into vapour by the heat suddenly applied to it, rarifies and bursts with noise the parts which compress it. The bodies most subject to decrepitation are certain salts, such as common salt, vitriolated tartar, nitre of lead, &c. the decrepitation of all which proceeds from the water of their crystallization. Clays which are not perfectly dry, and flints, are also subject to decrepitation.

DECREPITUDE, in medicine, the consequence of the infirmities of old age; which by degrees leads to death. See DEATH.

DECRETAL, in the canon law, a letter of a Pope determining some point or question in the ecclesiastical law. The decretals compose the second part of the canon law. The first genuine one, acknowledged by all the learned as such, is a letter of Pope Siricius, written in the year 385, to Himerus bishop of Tarragona, in Spain, concerning some disorders which had crept into the churches of Spain. Gratian published a collection of decretals, containing all the ordinances made by the popes till the year 1150. Gregory IX. in 1227, following the example of Theodosius and Justinian, formed a constitution of his own, collecting into one body all the decisions and all the causes which served to advance the papal power; which collection of decretals was called the *pentateuch*, because it contains five books.

DECUMARIA,

Decree
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Decretal.

* See Law,
n° clxxx.
15.

* Pennant's
Brit. Zool.
ii. 595.

Decumaria
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Dedication.

DECUMARIA, in botany: A genus of the monogynia order, belonging to the dodecandria class of plants; and in the natural method ranking under those of which the order is doubtful. The calyx is decapphyllous, superior; the petals ten; the fruit unknown.

DECUMATES AGRI, tithed fields, or granted on a tithe, as appears from Tacitus, to that rabble of Gauls who succeeded the Marcomanni, that had till then proved a check to the Roman conquest up the Rhine; and hence probably their name, people living on the marches or limits of the empire. In Cicero we have Ager Decumans, which is of the same import with the Ager Decumas of Tacitus.

DECUPLE PROPORTION, that of ten to one.

DECURIO, a subaltern officer in the Roman armies. He commanded a decuria, which consisted of ten men, and was the third part of a turma, or the 30th part of a legio of horse, which was composed of 380 men. There were certain magistrates in the provinces called *decuriones municipales*, who formed a body to represent the Roman senate in free and corporate towns. They consisted of ten; whence the name and their duty extended to watch over the interests of their fellow citizens, and to encrease the revenues of the commonwealth. Their court was called *curia decurionum* and *minor senatus*; and their decrees, called *decreta decurionum*, were marked with two D. D. at the top. They generally styled themselves *civitatum patres curiales*, and *honorati municipiorum senatores*. They were elected with the same ceremonies as the Roman senators; they were to be at least 25 years of age, and to be possessed of a certain sum of money. The election happened in the kalends of March.

DECURRENT LEAF. See BOTANY, p. 440.

DECURY, ten persons ranged under one chief or leader, called the *decurio*.

The Roman cavalry was divided into decuries, which were subdivisions of a century, each century containing ten decuries.

DECUSSATION, a term in geometry, optics, and anatomy, signifying the crossing of two lines, rays, or nerves, when they meet in a point, and then go on separately from one another.

DECUSSORIUM, a surgeon's instrument, which, by pressing gently on the dura mater, causes an evacuation of the pus collected between the cranium and the before mentioned membrane, through the perforation made by the trepan.

DEDHAM, a town of Essex in England, consisting of about 400 lofty houses. The streets are not paved, but very clean, occasioned by their lying pretty high. It has one large old church, remarkable for a fine Gothic steeple, with a great deal of carved work about it, but much injured by time. E. Long. 1. 10. N. Lat. 52. 5.

DEDICATION, the act of consecrating a temple, altar, statue, palace, &c. to the honour of some deity.

The use of dedications is very ancient both among the worshippers of the true god and among the heathens; the Hebrews call it *חננוּחָה* *hhanuchah*, "imitation;" which the Greek translators render *Εἰκαῖνῐα*, and *Εἰκαῖνῐσμος*, "renewing."

In the scripture we meet with dedications of the tabernacle, of altars, of the first and second temple, and even of the houses of private persons. There are also
N° 98.

dedications of vessels, and garments of the priests and Levites, and even of the men themselves.

The heathens had also dedications of temples, altars, and images of their gods, &c. Nebuchadnezzar held a solemn dedication of his statue, *Dan. iii. 2*. Pilate dedicated gilt bucklers at Jerusalem to Tiberius, *Philo de legat.* Petronius would have dedicated a statue to the emperor in the same city, *ibid. p. 791*. Tacitus, *Hist. lib. iv. c. 53*. mentions the dedication of the capitol, upon rebuilding it by Vespasian, &c.

The Jews celebrated the anniversary of the dedication of their temple every year for eight days. This was first enjoined by Judas Maccabeus, and the whole synagogue, in the year of the Syro-Macedonian era 148, i. e. 164 years before Christ. The heathens had the like anniversaries, as that of the dedication of the temple of Parthenope, mentioned by Lycophron. Under Christianity, dedication is only applied to a church: and is properly the consecration thereof performed by a bishop, with a number of ceremonies prescribed by the church.

The Christians finding themselves at liberty under Constantine, in lieu of their ruinous churches, built new ones in every place; and dedicated them with a deal of solemnity. The dedication was usually performed in a synod; at least they assembled a number of bishops to assist at the service. We have the description of those of the churches at Jerusalem and Tyre in Eusebius, and many others in later writers.

DEDICATION, in literature, is an address prefixed to a book soliciting patronage, or testifying respect for the person to whom it is made. The dedication of the fourth part of Mr Edwards's History of Birds, is curious: *To GOD! the ONE eternal! the incomprehensible! the omnipresent! omniscient and Almighty Creator of all things that exist! from orbs immeasurably great to the minutest points of matter, this Atom is dedicated and devoted, with all possible gratitude, humiliation, and worship, and the highest adoration both of body and mind, by his most resigned, low and humble creature, G. E.*

DEE (John), a famous mathematician and astrologer, was born (July 1527) in London, where his father was a wealthy vintner. In 1542, he was sent to St John's college Cambridge. After five years close application to mathematical studies, particularly astronomy, he went to Holland, in order to visit several eminent mathematicians on the continent. Having continued abroad near a year, he returned to Cambridge, and was there elected one of the fellows of Trinity college, then first erected by king Henry VIII. In 1548, he took the degree of Master of Arts; and, in the same year, left England a second time; his stay at home being rendered uneasy to him, by the suspicions that were entertained of his being a conjuror; arising partly from his application to astronomy, but especially on account of a piece of machinery in the *Fisum* of Aristophanes, which he exhibited to the university, and in which he represented the Scarabeus flying up to Jupiter, with a man and a basket of victuals on its back. These suspicions he could never after shake off: nor did his subsequent conduct, as we shall see, tend to clear him of the imputation; for if he was not actually a conjuror, it was not for want of endeavours.

Upon leaving England, he went to the university of Louvain; where he was much esteemed, and visited by several

Dedication,
Dec.

Dec.

several persons of high rank. Here he resided about two years, and then set out for France; where, in the college of Rheims, he read lectures of Euclid's elements with vast applause. In 1551, he returned to England, and was introduced by the secretary Cecil to king Edward, who assigned him a pension of 100 crowns, which he afterwards relinquished for the rectory of Upton upon Severn: but soon after the accession of queen Mary, having some correspondence with the lady Elizabeth's servants, he was accused of practising against the queen's life by enchantment. On this account he suffered a tedious confinement, and was several times examined; till, in the year 1555, he obtained his liberty by an order of council.

When queen Elizabeth ascended the throne, our astrological Dee was consulted by lord Dudley, concerning a propitious day for her majesty's coronation. He was on this occasion introduced to the queen, who made him great promises, which were never performed, though she condescended to receive his instructions relative to the mystical interpretation of some of his unintelligible writings, which he published about this time. In 1564, he made another voyage to the continent; in order to present a book which he had dedicated to the emperor Maximilian. He returned to England in the same year; but in 1571, we find him in Lorraine; where, being dangerously ill, the queen sent over two physicians to his relief. Having once more returned to his native country, he settled at Mortlake in Surrey, where he continued his studies with unremitting ardor, and collected a considerable library of curious books and manuscripts, with a variety of instruments; most of which were afterwards destroyed by the mob, as belonging to one who dealt with the devil. In 1578, the queen being much indisposed, Mr Dee was sent abroad to consult with German physicians and philosophers (astrologers no doubt) on the occasion. We now behold him again in England, where he was soon after employed in a more rational service. Her majesty, desirous to be informed concerning her title to those countries which had been discovered by her subjects, commanded Mr Dee to consult the ancient records, and furnish her with proper geographical descriptions. Accordingly, in a short time he presented to the queen, in the gardens at Richmond, two large rolls, in which the discovered countries were geographically described and historically illustrated. These rolls are preserved in the Cotton library, *Augustus I.* His next employment was the reformation of the calendar, on which subject he wrote a rational and learned treatise, preserved in the Ashmolean library at Oxford.

Hitherto the extravagancies of our excentric philosopher seem to have been counterpoised by a tolerable proportion of reason and science; but henceforward we consider him as a mere necromancer and credulous alchymist. In the year 1581, he became acquainted with one Edward Kelly, by whose assistance he performed diverse incantations, and maintained a frequent imaginary intercourse with spirits. He was particularly intimate, it seems, with the angels Raphael and Gabriel. One of them made him a present of a black speculum, in which his angels and demons appeared as often as he had occasion for them; they answered

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his questions, and Kelly's business was to record their dictates:

Kelly did all his feats upon
The devil's looking glass, a stone.

HUDIB. part ii. canto iii. v. 631.

In 1583, they were both introduced to a certain Polish nobleman, then in England, named *Albert Laske*, palatine of Siradia, a person equally addicted to the same ridiculous pursuits. He was so charmed with Dee and his companion, that he persuaded them to accompany him to his native country. They embarked for Holland in Sept. 1583; and travelling over land, arrived at the town of Laske in February following. Their patron, however, finding himself abused by their idle pretensions, persuaded them to pay a visit to Rodolph king of Bohemia; who, tho' a credulous man, was soon disgusted with their nonsense. They were afterwards introduced to the king of Poland, but with no better success. Soon after this, they were invited by a rich Bohemian nobleman to his castle of Trebona, where they continued for some time in great affluence; owing, as they asserted, to their art of transmutation by means of a certain powder in the possession of Kelly.

Dee, now quarrelling with his companion in iniquity, quitted Bohemia, and returned to England, where he was once more graciously received by the queen; who, in 1595, made him warden of Manchester college, in which town he resided several years. In 1604, he returned to his house at Mortlake, where he died in the year 1608, aged 81; leaving a large family, and many works, behind him.—The black stone into which Dee used to call his spirits, was in the collection of the earls of Peterborough, whence it came to lady Elizabeth Germaine. It was next the property of the late duke of Argyle, and is now Mr Walpole's. It appears upon examination to be nothing but a polished piece of cannel-coal.—That Dee was a man of considerable acquirements, is beyond a doubt; his mathematical knowledge is generally allowed: but, unless we suppose him a wicked impostor, which is by no means improbable, we must transmit him to posterity as one of the most foolish, superstitious, necromancers of his time. Nevertheless, the celebrated Dr Hook, many years after Dee's death, took it into his head to prove that his journal, published by Casaubon, was entirely cryptographical, concealing his political transactions, and that he was employed by queen Elizabeth as a spy.

DEE, the name of several rivers in Scotland and England; as those whereon the cities of Chester in England, and New Aberdeen in Scotland, are situated. The river Dee in Aberdeenshire abounds with salmon, so as to form one of the greatest salmon-fishings in Scotland.—Over this river there is a bridge of seven arches, built by a bishop of Aberdeen, who left for its support a revenue, which is now so large, that in order to exhaust the fund, a person has a salary to sweep the bridge once a-day.

DEED, an instrument written on paper or parchment, comprehending some contract, bargain, or agreement between the parties thereto, in relation to the matter therein contained.

DEEMSTERS, or DEMSTERS; (from the Saxon *dama*,

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Dec

Deemsters.

Deeping
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Defecate.

dema, judge or umpire.) All controversies in the Isle of Man are decided without process, writings, or any charges, by certain judges, chosen yearly from among themselves, called *deemsters*; there being two of them for each division of the island: they sit judges in all courts, either for life or property; and with the advice of 24 keys, declare what is law in uncommon emergencies.

DEEPING, a town of Lincolnshire in England, seated on the river Weland, in a fenny ground. W. Long. 0. 20. N. Lat. 52. 35.

DEER, in zoology. See CERVUS.—The method of hunting deer in the island of Ceylon is very particular. The huntsmen go out in the night, and only two usually go together; the one of these carries upon his head an earthen vessel, in which there is some fire burning and flaming; the ingredients are generally small sticks cut into pieces, and common rosin. Of this the other man carries a supply about him to replenish the pot when it grows low. The person who has the fire upon his head, carries in one hand a staff, on which there are fixed eight bells; and the larger these are, the better. This man goes first into the woods, and the other follows close behind with a spear in his hand. As soon as the deer hears the noise of the bells, he turns towards the place whence the sound comes; and seeing the fire, he eagerly runs up to it, and stands gazing at a small distance: the second man has then nothing to do but to kill him with the spear; for he sees neither of them.—Not only deer, but even elks and hares are thus taken; for they gaze at the fire, and never see the men. The profits of this sort of hunting are very large, and the danger nothing; for though there are numbers of tigers, elephants, and wild boars, in these woods, the huntsmen are in no danger from them while the fire burns, for they all run away from it.

DE FACTO, something actually in fact, or existing; in contradistinction to *de jure*, where a thing is only so in justice, but not in fact: as a king *de facto*, is a person who is actually in possession of a crown, but has no legal right to the same; and a king *de jure*, is the person who has a just right to the crown, though he is out of possession thereof.

DEFAMATION, the speaking slanderous words of another; for which the slanderer is punishable, according to the nature of his offence, either by action upon the case at common law, or by statute in the ecclesiastical court.

DEFAULT, in law, is generally taken for non-appearance in court, at a day assigned; but imports any omission of that which we ought to do, for which judgment may be given against the defaulter.

DEFEASANCE, or DEFEISANCE, in law, a condition relating to some certain deed, which being performed, the deed is defeated and rendered void, as if it had never been made. The difference between a common condition and a defeasance is, that the condition is annexed to, or inserted in, the deed; and a defeasance is a deed by itself concluded and agreed on between the parties, and having relation to another deed.

DEFECATE, in chemistry, a term applied to a body freed and purged from feces and impurities.

DEFECTION, the act of abandoning or relinquishing a party or interest a person had been engaged in.—The word is formed of the Latin *deficio*, to fall off.

Defection.
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Defenders.

DEFECTIVE, in general, an appellation given to things which want some of the properties that naturally they ought to have. Thus,

DEFECTIVE or *Deficient Nouns*, in grammar, are such as want either a whole number, a particular case, or are totally indeclinable. See NOUN.

The term *defective* is also applied to a verb that has not all its moods and tenses. See VERB, MOOD, &c.

DEFENCE, in fortification, all sorts of works that cover and defend the opposite posts, as flanks, casements, parapets, and faussebrays. See FORTIFICATION.

Line of DEFENCE, a supposed line drawn from the angle of the curtain, or from any other part in the curtain, to the flanked angle of the opposite bastion.

DEFEND, in general, signifies much the same with protecting, or keeping off injuries offered to any person either by enemies or otherwise.

DEFEND, in our ancient laws and statutes, signifies to prohibit or forbid: as *Usuarius defendit quoque rex Edwardus ne remanerent in regno*. L. L. Edw. Conf. c. 37. & 5 Rich. 2. c. 7. In which sense Chaucer also uses it in the following passage:

“Where can you say in any manner age,
“That ever God defended marriage.”

In 7 Edw. I. there is a statute intitled, “*Statutum de defensione portandi arma*,” &c. And “it is defended by law to distrain on the highway;” *Coke on Littl.* fol. 161.

DEFENDANT, in law, the person sued in an action personal; as *tenant* is he who is sued in an action real. See ACTION.

DEFENDER of the FAITH (*Fidei Defensor*), a peculiar title belonging to the king of England; as *Catholicus* to the king of Spain, and *Christianissimus* to the king of France, &c. These titles were given by the popes of Rome. That of *Fidei Defensor* was first conferred by Leo X. on king Henry VIII. for writing against Martin Luther; and the bull for it bears date *quinto idus Octob.* 1521. It was afterwards confirmed by Clement VII. But the pope, on Henry's suppressing the houses of religion at the time of the Reformation, not only deprived him of his title, but deposed him from his crown also: though in the 35th year of his reign, his title, &c. was confirmed by parliament; and hath continued to be used by all succeeding kings to this day.—Chamberlayne says, the title belonged to the kings of England before that time; and for proof hereof appeals to several charters granted to the university of Oxford. So that pope Leo's bull was only a renovation of an ancient right.

DEFENDERS, were anciently notable dignitaries both in church and state, whose business was to look to the preservation of the public weal, to protect the poor and helpless, and to maintain the interests and causes of churches and religious houses. See PROTECTOR. The council of Chalcedon, can. 2. calls the defender of a church *Exsitor*. Codin, *de officiis aulae Const.* makes mention of defenders of the palace. There were also a defender of the kingdom, *defensor regni*;

Defile
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Deflagra-
tion.

regni; defenders of cities, *defensores civitatis*; defenders of the people, *defensores plebis*; of the poor, fatherless, widows, &c.

About the year 420, each patriarchal church began to have its defender; which custom was afterwards introduced into other churches, and continued to later days under other names; as those of *Advocate*, and *Advowee*.

In the year 407, we find the council of Carthage asked the emperor, for defenders, of the number of *Scholastici*, i. e. advocates who were in office; and that it might be allowed them to enter and search the cabinets and papers of the judges and other civil magistrates, whenever it should be found necessary for the interest of the church.

DEFILE, in fortification, a straight narrow passage, through which a company of horse or foot can pass only in file, by making a small front.

DEFINITE, in grammar, is applied to an article that has a precise determinate signification; such as the article *the* in English, *le* and *la* in French, &c. which fix and ascertain the noun they belong to, to some particular; as *the king*, *le roy*: whereas, in the quality of *king*, *de roy*, the articles *of* and *de* mark nothing precise, and are therefore indefinite.

DEFINITION, in general, a short description of a thing by its properties; or, in logic, the explication of the essence of a thing by its kind and difference.

DEFINITIVE, a term applied to whatever terminates a process, question, &c. in opposition to provisional and interlocutory.

DEFLAGRATION, in Chemistry, the kindling or setting fire to a salt or mineral, &c. either alone or mixed for that purpose with a sulphureous one, in order to purify it.

This short process has been often recommended to the world as of great use in trying the strength of brandies and other vinous spirits, and has been greatly improved in this respect by Mr Geoffroy.

The common way of trying spirits by deflagration, is to measure out any quantity of it, then to heat it, and set it on fire. If, after it will no longer burn, the remainder is half as much as the quantity measured out for the trial was, then the spirit tried is found to consist of half water, and half totally inflammable spirit; that is, it is somewhat below what we understand by the term *perfect proof*.—This method is much more certain than that by the crown of bubbles which arises upon shaking the spirit in a vial. Monsr. Geoffroy's method is this: Take a cylindric vessel two inches high, and as much in diameter, consisting of thin plate silver, that metal being much less liable to rust than copper; this vessel must be fitted with a little rectangular gage exactly graduated into lines, half lines, &c. then the vessel being set level upon a copper case made to contain it, a parcel of the brandy to be examined is poured in, to the height of 16 lines. This height is to be exactly hit by pouring in more than enough at first, and then sucking out the overplus with a very small tube. Then the vessel being heated a little, so as just to make the liquor fume, it is to be set on fire and left to go out of itself; at the instant when the flame expires, the gage is plunged perpendicularly into the vessel, and the lines and quarters exactly noted

which the liquor wants of its former height: this difference gives the precise quantity of alcohol or pure spirit contained in the liquor. Thus, if eight lines of phlegm are found remaining, this being the half of the 16 lines of the original filling, it is plain, that the liquor contained one half spirit, or was something below proof. If only four lines remained, it was nearly double proof, or of a middle nature betwixt alcohol and common proof-spirit.

DEFLECTION of the RAYS of LIGHT, a property which Dr Hook observed in 1675, and read an account of before the Royal Society, March 18. the same year. He says he found it different both from reflection and refraction, and that it was made towards the surface of the opaque body, perpendicularly. This is the same property which Sir Isaac Newton calls INFLECTION.

DEFLORATION, or DEFLOWERING, the act of violating or taking away a woman's virginity. See VIRGINITY.—Death or marriage are decreed by the civil law in case of defloration.

The ancients had so much respect for virgins, that they would not put them to death till they had first procured them to be deflowered. It is said, the natives of the coast of Malabar pay strangers to come and deflower their brides.

In Scotland, and the northern parts of England, it was a privilege of the lords of the manor, granted them by king Ewen, that they should have the first night's lodging with their tenants wives. King Malcolm III. allowed the tenants to redeem this service at a certain rate, called *marcbeta*, consisting of a certain number of cows: Buchanan says it was redeemed with half a mark of silver. The same custom had place in Wales, Flanders, Friesland, and some parts of Germany.

DEFLUXION, in medicine, the falling of the humours from a superior to an inferior part of the body.

DE FOE (Daniel), a writer famous for politics and poetry, was bred a hosier; which profession however he soon forsook, and became one of the most enterprising authors that any age produced. When discontents ran high at the revolution, and king William was obliged to dismiss his Dutch guards, De Foe, who had true notions of civil liberty, ridiculed the enemies of government in his well-known poem, called *The True-born Englishman*, which had a prodigious sale. The next satire he wrote was entitled *Reformation of Manners*; aimed at some persons of high rank, who rendered themselves a disgrace to their country. When the ecclesiastics in power breathed too much of a spirit of persecution, De Foe wrote a tract called *The Shortest Way with the Dissenters*: for which he was called to account, and explained himself with great firmness. He was afterwards sentenced to the pillory for attacking some public measures; which so little intimidated him, that, in defiance of their usage, he wrote *A Hymn to the Pillory*. It would be endless to enumerate all his publications; but the following are the principal: *The History of the Plague in 1665*; a novel intitled *The History of Colonel Jack*; *A new voyage round the World by a Company of Merchants*, printed for Bettelworth, 1725; *The History of Roxana*; *Memoirs of a Cavalier*; *The History of Moll Flanders*; a book intitled *Religious Courtship*, which has undergone upwards of 20 editions; and the *Life and Adventures of Robinson Crusoe*.

Deflection
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De Foe.

Defoliation an admirable performance, of which there have been editions without number, but concerning which there is an anecdote that does the author of it no credit as to the better part of a writer's character, honesty. When captain Woods Rogers touched at the island of Juan Fernandes, in the South Sea, he brought away Alexander Selkirk, a Scots sailor, who had been left ashore there, and had lived on that desolate place above four years. When Selkirk came back to England, he wrote a narrative of his adventures, and put the papers into the hands of De Foe, to digest for publication; who ungenerously converted the materials into the History of Robinson Crusoe, and returned Selkirk his papers again! A fraud for which, in a humane view, the distinguished merit of that romance can never atone. Daniel De Foe died at Islington, in 1731. All his productions of the romantic species, but especially the two last mentioned, are much in vogue among country readers; and, on account of their moral and religious tendency, may very probably in some measure counteract the pernicious effects produced by the too general circulation of modern novels, those occasional vehicles of impiety and infidelity.

DEFOLIATION, (from *de*, and *folium* a leaf); the fall of the leaves. A term opposed to *frondescentia*, the annual renovation of the leaves, produced by the unfolding of the buds in spring. See **FRONDESCENTIA**.

Most plants in cold and temperate climates shed their leaves every year: this happens in autumn, and is generally announced by the flowering of the common meadow saffron. The term is only applied to trees and shrubs; for herbs perish down to the root every year, losing stem, leaves, and all.

All plants do not drop their leaves at the same time. Among large trees, the ash and walnut, altho' latest in unfolding, are soonest divested of them: the latter seldom carries its leaves above five months.

On the oak and horn-beam, the leaves die and wither as soon as the colds commence; but remain attached to the branches till they are pushed off by the new ones, which unfold themselves the following spring. These trees are doubtless a kind of evergreens: the leaves are probably destroyed only by cold; and perhaps would continue longer on the plant, but for the force of the spring-sap, joined to the moisture.

In mild and dry seasons, the lilac, privet, yellow jessamine of the woods, and maple of Crete, preserve their leaves green until spring, and do not drop them till the new leaves are beginning to appear. The fig-tree, and many other trees that grow between the tropics, are of this particular class of evergreens. The trees in Egypt, says Doctor Hasselquist, cast their leaves in the latter end of December and beginning of January, having young leaves ready before all the old ones are fallen off; and, to forward this operation of nature, few of the trees have buds: the sycamore and willow, indeed, have some, but with few and quite loose *stipulae* or scales. Nature did not imagine buds so necessary in the southern as in the northern countries; this occasions a great difference between them.

Lastly, some trees and shrubs preserve their leaves

constantly through the whole year; and are not in the least influenced by the clemency or inclemency of seasons. Such are the firs, juniper, yew, cedar, cypress, and many other trees, hence denominated *evergreens*. These preserve their old leaves a long time after the formation of the new, and do not drop them at any determinate time. In general, the leaves of evergreens are harder, and less succulent, than those which are renewed annually. The trees are generally natives of warm climates; as the alaternules of France and Italy, the evergreen oak of Portugal and Suabia.

Some herbaceous perennials, as the house-leeks and navel-worts, enjoy the same privilege with the evergreen trees, and resist the severities of winter: some even can dispense with the earth for some time; being replete with juices, which the leaves imbibe from the humidity of the atmosphere, and which, in such plants, are, of themselves, sufficient for effecting the purposes of vegetation. It is for this reason, that, unless in excessive hot weather, gardeners are seldom wont to water fat succulent plants, as the aloes, which rot when they are moistened, if the sun does not quickly dry them up.

The leaves of all the evergreen shrubs and trees, have a thin compact skin or cover over their surface; as is easily discovered by macerating them in water, in order to separate the parenchyma, or pulp, from the vessels of the leaves; which cannot be effected in any of these evergreens till a thin parchment-like cover is taken off. These trees and shrubs are found by experiment to perspire but little, when compared with others which shed their leaves; and it is, perhaps, principally owing to this close covering, as also to the small proportion of moisture contained in their vessels, that they retain their verdure, and continue through the winter on the trees. The nutritive juices of these plants always abound, more or less, with an oily quality, which secures them from being injured by severe frosts; so that many of these evergreen trees are adapted to grow in the coldest parts of the habitable world.

With respect to deciduous trees, the falling off of the leaves seems principally to depend on the temperature of the atmosphere, which likewise serves to hasten or retard the appearance in question. An ardent sun contributes to hasten the dropping of the leaves. Hence in hot and dry summers, the leaves of the lime-tree and horse-chestnut turn yellow about the first of September; whilst in other years, the yellowness does not appear till the beginning of October. Nothing, however, contributes more to hasten the fall of the leaves, than immoderate cold or moist weather in autumn; moderate droughts, on the other hand, serve to retard it. As a proof of this position, Mr Adanson relates, that in the year 1759, the leaves of the elm-tree, which generally fall off about the 25th of November, continued in verdure and vigour at Paris, where the autumn was remarkably dry, till the 10th of the following month.

The following table, respecting the mean times in which different trees shed their leaves, is founded upon observation.

Defoliation Deformity.	Gooseberry-tree and bladder-sena,	Generally quit their leaves about	October 1st
	Walnut and ash,		15th
	Almond-tree, horse-chestnut, and lime-tree,		20th
	Maple, hazle-nut, black poplar, and aspen-tree,		25th
	Birch, plane-tree, mountain-oſier, false acacia, pear, and apple-tree,		November 1st
	Vine, mulberry, fig, sumac, and angelica-tree,		10th
	Elm-tree and willow,		15th
	Apricot and elder-trees,		20th

Milne's
Bot. Dict.

It deserves to be remarked, that an evergreen tree grafted upon a deciduous, determines the latter to retain its leaves. This observation is confirmed by repeated experiments, particularly by grafting the laurel, or cherry-bay, an evergreen, on the common cherry; and the ilex, or evergreen oak, on the oak.

DEFORCEMENT, in law, the casting any one out of his land, or withholding of lands and tenements by force from the right owner.

DEFORCEMENT, in Scots law, the opposing or resisting of the officers of the law in the execution of their office. See *LAW*, N^o clxxxvi. 15.

DEFORMITY, the want of that uniformity necessary to constitute the beauty of an object. See *BEAUTY*.

Deformity is either natural or moral. These are both referred by Mr Hutcheson to an internal sense; and our perceptions of them, as he supposes, arises from an original arbitrary structure of our own minds, by which certain objects, when observed, are rendered the occasions of certain sensations and affections.

That many objects give no pleasure to our sense is obvious. Many are certainly void of beauty; but then, says this author, there is no form which seems necessarily disagreeable of itself, when we dread no other evil from it, and compare it with nothing better of the kind. Many objects are naturally displeasing and distasteful to our external senses, as well as others pleasing and agreeable; as smells, tastes, and some separate sounds: but with regard to our sense of beauty, no composition of objects which give not unpleasant simple ideas, seems positively unpleasant or painful of itself, had we never observed any thing better of the same kind.

Had there been a species of the form which we now denominate *ugly* or *deformed*, and had we never seen or expected greater beauty, we should have received no disgust from it; though the pleasure would not have been so great in this form as in those we now admire. Our sense of beauty seems designed to give us positive pleasure; but not positive pain or disgust, any farther than what arises from disappointment.

There are indeed many faces which at first view are apt to raise dislike. But this is generally not from any positive deformity; but either from want of expected beauty, or from the carrying some natural indications of morally bad dispositions, which we all acquire a faculty of discerning in countenances, airs, and gestures. That this is not occasioned by any form positively disgusting, appears hence, that if, upon long acquaintance, we are sure of finding sweetness of tem-

per, humanity, and cheerfulness, though the bodily form continues, it shall give us no disgust. There are horrors raised by some objects, which are only the effect of fear for ourselves, or compassion towards others, when either reason, or some foolish association of ideas, makes us apprehend danger; and not the effect of any thing in the form itself. For we find, that most of those objects which excite horror at first, when experience or reason has removed the fear, may become the occasion of pleasure.

The casual conjunction of ideas gives us disgust, where there is nothing disagreeable in the form itself. And this, in effect, is the cause of most of our fantastic aversions to the figures of divers animals, &c. Thus serpents of all kinds, and many insects, really beautiful enough, are beheld with aversion by many people, who have got some accidental ideas of mischief associated to them. A similar reasoning is applied to our perception of moral beauty and deformity. *Inquiry into the Original of our Ideas of Beauty and Virtue*, passim.

But it is more just to distinguish between the sentiments of delight or disgust, excited in us by beautiful or deformed objects, which are effects of some causes, and the natural and real qualities of the perceived objects by which they are produced. There are objects, says an excellent writer, which have a natural aptitude to please or offend, or between which and the contemplating mind there is a necessary congruity or incongruity; and though the actual perception of the understanding, and consequent feeling of the heart, in contemplating the actions and affections of moral agents, may exist in very different degrees, on account of the incidental obstructions arising from bodily indisposition, mental prejudices and biases, and the association of ideas; yet, to every rational mind properly disposed, morally good actions must for ever be acceptable, and can never of themselves offend; and morally evil actions must for ever be disagreeable, and can never of themselves please. What is right in actions and characters is beautiful and amiable, and gives pleasure; what is wrong is deformed and odious, and excites disgust: right and pleasure, wrong and pain, are as distinct as cause and effect. It is no less absurd to maintain, that the perception of virtue is nothing distinct from the reception of the pleasure resulting from it, than to infer, with some metaphysicians, that solidity, extension, and figure, are only particular modes of sensation, because attended, whenever they are perceived, with some sensations of sight or touch. Thus does this author show, that moral beauty and deformity are real qualities of certain actions; in which consists their aptitude to please or disgust. With respect to natural beauty, he observes, that uniformity amidst variety, pleases, because of the natures of variety and uniformity, which are such, that whenever united, they are adapted to please every free unbiassed mind that discerns them. He accounts for the pleasure they afford, without referring them to an arbitrary internal sense, by the following circumstances that attend them. They are more easily comprehended by the mind: order and symmetry give things their stability and strength, and subserviency to any valuable purpose; regularity and order evidence art and design. Disorder and confusion, whence deformity arises, denote only the negation of regularity and

Deformity.

Deformity. and order; or any arrangement and disposition of things, which are not according to a law, rule, or plan, and prove not design. These are not positively displeasing; except where we previously expected order, or where impotence or want of skill appear, and the contriver has either failed of his design or executed it ill.

In the Fugitive Pieces, is preserved an excellent essay on Bodily Deformity by the late William Hay, Esq; who was himself what he describes, and who, while he rallies his own figure with great pleasantry, discusses the general subject in a manner equally instructive and agreeable. He considers, 1. The natural consequences of bodily deformity; 2. How it affects the outward circumstances; and, 3. What turn it gives to the mind.

1. It is certain, that the human frame, being warped and disproportioned, is lessened in strength and activity, and rendered less fit for its functions. Scarron had invented an engine to take off his hat; "and I wish (says our author) I could invent one to buckle my shoe, or to take up a thing from the ground, which I can scarce do without kneeling, for I can bend my body no farther than it is bent by nature. For this reason, when ladies drop a fan or glove, I am not the first to take it up; and often restrain my inclination to perform those little services, rather than expose my spider-like shape. And I hope it will not be construed as pride, if I do not always rise from my seat when I ought: for if it is low, I find some trouble in it; and my center of gravity is so ill placed, that I am often like to fall back. Things hanging within the reach of others are out of mine; and what they can execute with ease, I want strength to perform. I am in danger of being trampled upon or stifled in a crowd, where my back is a convenient lodgment for the elbow of any tall person that is near. I can see nothing, and my whole employment is to guard my person. I have forborne to attend his Majesty in the house of peers since I was like to be squeezed to death there against the wall. I would willingly come thither when his majesty commands, but he is too gracious to expect impossibilities. Besides, when I get in, I can never have the pleasure of seeing on the throne one of the best princes who ever sat on it. These, and many others, are the inconveniences continually attending a figure like mine. They may appear grievous to persons not used to them, but they grow easier by habit; and though they may a little disturb, they are not sufficient to destroy the happiness of life; of which, at an average, I have enjoyed as great a share as most men. And perhaps one proof of it may be my writing this Essay; not intended as a complaint against Providence for my lot, but as an innocent amusement to myself and others."

As to what effect deformity may have on the health, it appears natural to imagine, that as the inward parts of the body must in some measure comply with the outward mould, so the form of the latter being irregular, the first cannot be so well placed and disposed to perform their functions; and that generally deformed persons would not be healthy or long-lived. But this is a question best determined by facts; and in this case the instances are too few or unobserved, to draw a general conclusion from them: and health is more than

is commonly thought in a man's own power, and the reward of temperance more than the effect of constitution; which makes it still more difficult to pass a judgment. Æsop could not be young when he died; and might have lived longer if he had not been murdered at Delphi. The Prince of Orange scarce passed the meridian of life, and the Duke of Luxemburg died about the age of 67. The Lord Treasurer Burleigh lived to 78; but his son, the Earl of Salisbury, who died about 15 years after him, could not reach near that age. It is said that Mr Pope's father was deformed, and he lived to 75; whereas the son died in middle age, if he may be said to die whose works are immortal. "My father (adds our author) was not deformed, but active, and my mother a celebrated beauty; and I, that am so unlike them, have lived to a greater age, and daily see my acquaintance of a stronger frame quitting the stage before me."

But whether deformity, abstractedly considered, be really prejudicial to health, in its consequences it appears to be most commonly an advantage. Deformed persons have a less share of strength than others, and therefore should naturally be more careful to preserve it; and as temperance is the great preservative of health, it may incline them to be more temperate. Another great preservative of health is moderate exercise, which few deformed persons can want strength to perform. As a deformed person is not formed for violent exercise, he is less liable to such disorders as are the natural consequence of it. He will also escape many accidents, to which men of athletic make, and who glory in their strength, are always exposing themselves to make trial and proof of. If he cannot carry an ox, like Milo, he will not, like Milo, be handcuffed in the oak by attempting to rend it. He will not be the man that shall ride from London to York in a day, or to Windsor in an hour, for a wager; or that shall be perpetually performing surprising long journeys in a surprising short time, for no earthly business but the pleasure of relating them. Conscious of his own weakness, he will be cautious of running into places or occasions of danger. Nature, too, warns deformed persons to be careful not to offer such affronts as may call them forth into the field of false honour, where they cannot acquit themselves well for want of strength and agility; and they are securer from such affronts themselves, since others will consider the little credit they will gain by compelling them to appear on that scene. On the whole, therefore, it may be concluded, that deformity is a protection to a man's health and person; which (strange as it may appear) are better defended by feebleness than strength.

2. The influence of bodily deformity on a man's fortune may next be considered. Among the lower class, he is cut off from many professions and employments. He cannot be a soldier, he is under standard; he cannot be a sailor, he wants activity to climb the rigging; he cannot be a chairman or porter, he wants strength to bear the burden. In higher life, he is ill qualified for a lawyer, he can scarce be seen over the bar; for a divine, he may drop from his hassock out of sight in his pulpit. The improvement of his mind is his proper province, and his business only such as depends on ingenuity. If he cannot be a dancing-master to adjust the heels, he may be a schoolmaster to instruct

Deformity. instruct the head: he cannot be a graceful actor on the stage; but he may produce a good play: he would appear ill as a herald in a procession; but may pass as a merchant on the change: he cannot undergo the fatigue of the campaign; but he may advise the operations of it: he is designed by nature rather to sleep on Parnassus, than to descend on the plains of Eolis: he cannot be crowned at the Olympic games; but may be the Pindar to celebrate them: he can acquire no glory by the sword: but he may by the pen, and may grow famous by only relating those exploits which are beyond his power to imitate.

Lord Bacon (that extensive and penetrating genius, who pointed out every part of nature for examination), in his Essay on Deformity, says, "that in their superiors it quencheth jealousy towards them, as persons that they think they may at pleasure despise; and it layeth their competitors and emulators asleep, as never believing they should be in a possibility of advancement till they see them in possession." But it is much to be doubted whether this is not more than counterbalanced by the contempt of the world, which it requires no mean parts to conquer; for if (as has been said) a good person is a letter of recommendation, deformity must be an obstruction in the way to favour. In this respect, therefore, deformed persons set out in the world to a disadvantage; and they must first surmount the prejudices of mankind before they can be upon a par with others, and must obtain by a course of behaviour that regard which is paid to beauty at first sight. When this point is once gained, the tables are turned, and then the game goes in their favour: for others, sensible of their injustice to them, no sooner find them better than they expected, than they believe them better than they are; whereas in the beautiful person they sometimes find themselves imposed upon, and are angry that they have worshipped only a painted idol. For (again take Lord Bacon's words) "neither is it almost seen, that very beautiful persons are otherwise of great virtue: they prove accomplished, but not of great spirit; and study rather behaviour than virtue. Whereas deformed persons, if they be of spirit, will free themselves from scorn, which must be either by virtue or malice, and therefore let it not be marvelled if they sometimes prove excellent persons, as was Agelaus, Zanger the son of Solomon, Æsop, Gasca president of Peru; and Socrates may likewise go amongst them, with others." Nay, he says "in a great wit deformity is an advantage to rising." And in another part of his works, "that they who by accident have some inevitable and indelible mark on their persons or fortunes, as deformed people, bastards, &c. if they want not virtue, generally prove fortunate."

Osborn, in his Historical Memoirs of Queen Elizabeth, informs us, that "she chose the goodliest persons for her household servants: but in her counsellors did not put by sufficiency, though accompanied with a crooked person; as it chanced in a father and a son of the Cecils, both incomparable for prudence." It is well known the Queen would make the father

(Burleigh) sit in her presence; telling him that she did not use him for his legs but his head. But the son (afterwards lord treasurer and Earl of Salisbury) was not so civilly treated by the populace; and is an instance, not only that envy pursues a great man, but that the highest post cannot redeem a deformed one from contempt: it attends him like his shadow, and like that too is ever reminding him of his ill figure, which is often objected for want of real crimes. For the same writer says of the same great man, "that the misfortunes accompanying him from his birth, did not a little add to that cloud of detraction that fell upon all that he said or did; a mulct in nature, like an optic spectacle, multiplying much in the sight of the people the apparitions of ill." Nor was this contempt buried with him: it trampled on his ashes, and insulted his grave; as appears by an epitaph, which Osborn cites, as void of wit as it is full of scurrility; in one line of which there is an epithet, not so elegant as descriptive of his person, viz. "Little Boffive Robin, that was so great."

Such contempt in general, joined with the ridicule of the vulgar, is another certain consequence of bodily deformity; for men naturally despise what appears less beautiful or useful, and their pride is gratified when they see such foils to their own persons. It is this sense of superiority which is testified by laughter in the lower sort; while their betters, who know how little any man whatsoever hath to boast of, are restrained by good sense and good breeding from such an insult. But it is not easy to say why one species of deformity should be more ridiculous than another, or why the mob should be more merry with a crooked man, than with one that is deaf, lame, squinting, or purblind. It is a back in altore lievo that bears all the ridicule; tho' one would think a prominent belly a more reasonable object of it, since the last is generally the effect of intemperance and of a man's own creation. Socrates was ugly, but not contemned; and Philopœmen (A) of very mean appearance, and though contemned on that account, not ridiculed: for Montaigne says, "Ill features are but a superficial ugliness, and of little certainty in the opinion of men; but a deformity of limbs is more substantial, and strikes deeper in." As it is more uncommon, it is more remarkable; and that perhaps is the true reason why it is more ridiculed by the vulgar.

5. The last consideration on this subject relates to those passions and affections which most naturally result from deformity. Lord Bacon observes, that "deformed persons are commonly even with nature; for as nature hath done ill by them, so do they by nature, being for the most part (as the scripture saith) void of natural affection." But (says Mr Hay) "I can neither find out this passage in scripture, nor the reason of it; nor can I give my assent or negative to a proposition, till I am well acquainted with the terms of it. If by natural affection is here meant universal benevolence, and deformity necessarily implies a want of it, a deformed person must then be a complete monster. But however

(A) Coming to an inn, where he was expected, before his attendants, the mistress of the house seeing a plain person of very mean aspect, ordered him to assist in getting things ready for Philopœmen. His attendants finding him so employed, he told them he was then paying the tribute of his ugliness. *Plutarch.*

Deformity. however common the case may be, my own sensations inform me that it is not universally true. If by natural affection is meant a partial regard for individuals, I believe the remark is judicious, and founded in human nature. Deformed persons are despised, ridiculed, and ill-treated by others; are seldom favourites, and commonly most neglected by parents, guardians, and relations; and therefore, as they are not indebted for much fondness, it is no wonder if they repay but little. It is the command of scripture, *Not to set our affections on things below*; and it is the voice of reason, not to overvalue what we must soon part with: therefore, to be so fond of others as not to be able to bear their absence, or to survive them, is neither a religious nor moral duty, but a childish and womanish weakness; and I must congratulate deformed persons, who, by example, are early taught another lesson. And I will now lay open my own heart to the reader, that he may judge if Lord Bacon's position is verified in me.

"I hope it proceeds not from a malignity of heart; but I never am much affected with the common accidents of life, whether they befall myself or others. I am little moved when I hear of death, loss, or misfortune; I think the case is common.

Tritus, & e medio fortunæ ductus acervo:
Juv. Sat. xiii.

And as it is always likely to happen, I am not surprised when it does. If I see a person cry or beat his breast on any such occasion, I cannot bear him company; but am not a Democritus to laugh at his folly. I read of battles and fields covered with slain; of cities destroyed by sword, famine, pestilence, and earthquake; I do not shed a tear: I suppose it is, because they are the usual storms, to which the human species are exposed, proceeding from the just judgments of God, or the mistaken and false principles of rulers. I read of persecutions, tortures, murders, massacres; my compassion for the sufferers is great, but my tears are stopped by resentment and indignation against the contrivers and perpetrators of such horrid actions. But there are many things that bring tears into my eyes whether I will or no; and when I reflect, I am often at a loss in searching out the secret source from whence they flow. What makes me weep (for weep I do) when I read of virtue or innocence in distress; of a good man helpless and forsaken, unmoved by the greatest insults and cruelties, or courageously supporting himself against oppression in the article of death? I suppose it is, to see vice triumphant, and virtue so ill rewarded in this life. May I judge by myself, I should imagine that few sincere christians could read the sufferings of their Saviour, or Englishmen those of a Cranmer, Ridley, or Latimer, without tears; the first dying to establish his religion, the last to rescue it from corruption. When I read of Regulus returning to torment, and John of France to imprisonment, against the persuasion of friends, to keep faith with their enemies, I weep to think there is scarce another instance of such exalted virtue. Those who often hear me read, know that my voice changes, and my eyes are full, when I meet with a generous and heroic saying, action, or character, especially of persons whose example or command may influence mankind. I weep when I hear a Titus say, that he had lost the day in which he did no good; when Adrian tells his enemy, that he had escaped by

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his being emperor; or Louis XII. that he is not to revenge the affront of the duke of Orleans. These are the first instances that happen to occur to me: I might recollect many, too many to insert in this essay; yet all are but few, compared to instances of cruelty and revenge: perhaps I am concerned that they are so rare; perhaps too I inwardly grieve that I am not in a situation to do the like. I am entertained, but not moved, when I read Voltaire's History of Charles XII. but I melt into tears on reading Hanway's character of his antagonist Peter the Great. The first is a story of a madman; the other of a father, friend, and benefactor of his people; whose character (as the author observes in the conclusion of it) will command the admiration of all succeeding generations; and I suppose I lament, that God is pleased to advance to royalty so few such instruments of good to mankind.

Again: "I am uneasy when I see a dog, a horse, or any other animal ill treated: for I consider them as endued with quick sense, and no contemptible share of reason; and that God gave man dominion over them, not to play the tyrant, but to be a good prince, and promote the happiness of his subjects. But I am much more uneasy at any cruelty to my own species; and heartily wish Procrustes disciplined in his own bed, and Phalaris in his bull. A man bruised all over in a boxing match, or cut to pieces in fighting a prize, is a shocking spectacle; and I think I could with less horror see a thousand fall in battle, than human nature thus depreciated and disgraced. Violence, when exerted in wantonness or passion, is brutality; and can be termed bravery only when it is sanctioned by justice and necessity.

"I have been in a situation to see not a little of the pomp and vanity, as well as of the necessity and misery, of mankind: but the last only affect me; and if, as a magistrate, I am ever guilty of partiality, it is in favour of the poor. When I am at church among my poor but honest neighbours in the country, and see them serious in performing the ceremonies prescribed, tears sometimes steal down my cheek, on reflecting, that they are doing and hearing many things they do not understand, while those who understand them better neglect them: that they, who labour and live hard, are more thankful to heaven than those who fare luxuriously on the fruits of their labour; and are keeping and repeating the fourth commandment at the very instant the others are breaking it.

"These are some of the sensations I feel; which I have freely and fairly disclosed, that the reader may judge, how far I am an instance of a deformed person wanting natural affection. And I am a good subject of speculation; because all in me is nature: for to own the truth, I have taken but little pains (tho' I ought to have taken a great deal) to correct my natural defects.

"Lord Bacon's next position is, 'That deformed persons are extremely bold: first in their own defence, as being exposed to scorn; but in process of time by a general habit.' This, probably, is so among the inferior sort, who are in the way of continual insults: for a return of abuse is a natural weapon of self-defence, and in some measure justified by the law of retaliation: To upbraid a man with a personal defect, which he cannot help, is also an immoral act; and he who does it, has reason to expect no better quarter than to hear

of

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of faults, which it was in his own power not to commit. But I find this observation far from being verified in myself: an unbecoming bashfulness has been the consequence of my ill figure, and of the worse management of me in my childhood. I am always uneasy, when any one looks steadfastly on so bad a picture; and cannot look with a proper confidence in the face of another. I have ever reproached myself with this weakness, but am not able to correct it. And it may be a disadvantage to a man in the opinion of those he converses with; for though true modesty is amiable, the false is liable to misconstruction: and when a man is out of countenance for no reason, it may be imagined that he has some bad reason for being so. In point of assurance, I am indeed a perfect riddle to myself; for I, who feel a reluctance in crossing a drawing room, or in opening my mouth in private company before persons with whom I am not well acquainted, find little in delivering my sentiments in public, and exposing my discourse, often as trifling as my person, to the ears of a thousand. From what cause this proceeds, I know not: it may be partly from hopes of wiping off any ill impression from my person by my discourse, partly from a sense of doing my duty, and partly from a security in public assemblies from any gross personal reflection.

“ Lord Bacon compares the case of deformed persons to that of eunuchs; “ in whom kings were wont to put great trust as good spies and whisperers; for they that are envious towards all, are more obnoxious and officious towards one.” But, with submission to so good a judge of human nature, I own I can discover no uncommon qualification in them for spies; and very few motives to envy peculiar to themselves. Spies submit to that base and ungenerous office, either for the sake of interest or power: if for interest, it is to gratify their covetousness; if for power, their ambition or revenge; which passions are not confined to the eunuch or deformed, but indiscriminately seize all classes of men. Envy too may prompt a man to mean actions, in order to bring down the person envied to his own level; but if it is on account of superiority of fortune, it will operate alike on men of all shapes. Eunuchs have but one peculiar motive to envy: but that (as Lord Bacon expresses it) makes them envious towards all; because it is for a pleasure which all but themselves may enjoy. Deformed persons are deprived only of beauty and strength, and therefore those alone are to be deemed the extraordinary motives to their envy; for they can no more be beautiful or strong, than eunuchs be successful lovers. As to myself, whatever sparks of envy might be in my constitution, they are now entirely extinguished; for, by frequent and serious reflections, I have long been convinced of the small value of most things which men value the most.

“ There is another passion to which deformed per-

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sons seem to be more exposed than to envy; which is jealousy: for being conscious that they are less amiable than others, they may naturally suspect that they are less beloved. I have the happiness to speak this from conjecture, and not from experience; for it was my lot, many years ago, to marry a young lady, very piously educated, and of a very distinguished family, and whose virtues are an honour to her family and her sex: so that I had never any trial of my temper, and can only guess at it by emotions I have felt in my younger days; when ladies have been more liberal of their smiles to those whom I thought, in every respect but person, my inferiors.”

The most useful inference from all this to a deformed person is, to be upon his guard against those frailties to which he is more particularly exposed; and to be careful, that the outward frame do not distort the soul. *Orandum est* (says Juvenal), *ut sit mens sana in corpore sano*, “ Let us pray for a sound mind in a healthy body:” and every deformed person should add this petition, *ut sit mens recta in corpore curvo*, for “ an upright mind in a crooked one.” And let him frequently apply to himself this article of self-examination, *Lenior et melior fis, accedente senectâ?* “ As age approaches, do your temper and morals improve?” It is a duty peculiarly incumbent; for if beauty adds grace to virtue itself, vice must be doubly hideous in deformity.

Ridicule and contempt are a certain consequence of deformity; and therefore what a person cannot avoid, he should learn not to regard. He should bear it like a man; forgive it as a Christian; and consider it as a philosopher. And his triumph will be complete, if he can exceed others in pleasantry on himself. Wit will give over when it sees itself outdone; and so will malice when it finds it has no effect: And if a man's behaviour afford no cause of contempt, it will fall upon those who condemn him without cause.

Instead of repining, therefore, a deformed person ought to be thankful to Providence for giving him such a guard to his virtue and repose. Thousands are daily ruined by a handsome person; for beauty is a flower that every one wants to gather in its bloom, and spares no pains or stratagem to reach it. All the poetical stories concerning it have their moral. A Helen occasions war and confusion; the Hyacinths and Ganymedes are seized on for Catamites; the Endymions and Adonises for gallants; Narcissus can admire nobody but himself, and grows old before he is cured of that passion. Who is a stranger to the story of Lucretia killing herself for her violated chastity? or of Virginia killed by her father to preserve it? In those circumstances, says Juvenal, she might wish to change persons with Rutula, the only lady we know among the ancients celebrated for a hump-back. The handsomest men are chosen for eunuchs and gallants; and when they are caught in exercising the last function, both (A) Horace and Juvenal inform you of the penalties

4 X

(A) Hic se præcipitem tecto dedit: ille flagellis
Ad mortem cæsus: fugiens hic decedit acrem
Prædonum in turbam: dedit hic pro corpore nummos:
Hunc perminxerunt calones: quin etiam illud

Accidit, ut cuidam testes caudamque falacem
Demeteret ferrum———Hor. Sat. ii. l. i.
———Quosdam mæchos et mugilis intrat. Juv. ibi.

Deformity. penalties and indignities they undergo. Silius (B) was converted by the insatiable Messalina into a husband; and Sporus, by the monster Nero, into a wife. The last mentioned poet shows that praying for beauty is praying for a curse; and (c) Persius refuses to join in such a prayer: and has not the deformed person reason to thank his stars, which have placed him more out of danger than even virtue could? for that could not guard a Joseph, an (D) Hippolytus, a Bellerophon, and others, against the revenge of slighted love.

Another great advantage of deformity is, that it tends to the improvement of the mind. A man that cannot shine in his person, will have recourse to his understanding; and attempt to adorn that part of him, which alone is capable of ornament. When his ambition prompts him to begin, with Cowley, to ask, himself this question,

What shall I do to be for ever known,
And make the age to come my own?

on looking about him, he will find many avenues to the temple of fame barred against him; but some are still open through that of virtue; and those, if he has a right ambition, he will most probably attempt to pass. The more a man is inactive in his person, the more his mind will be at work; and the time which others spend in action, he will pass in study and contemplation: by these he may acquire wisdom; and by wisdom, fame. The name of Socrates is as much founded as those of Alexander and Cæsar; and is recorded in much fairer characters. He gained renown by wisdom and goodness; they by tyranny and oppression: he by instructing, they by destroying, mankind: and happy it is, that their evil deeds were confined to their lives; while he continues to instruct us to this day. A deformed person will naturally consider where his strength and his foible lie: and as he is well acquainted with the last, he will easily find out the first; and must know, that (if it is any where) it is not, like Samson's, in the hair; but must be in the lining of the head. He will say to himself, "I am weak in person: unable to serve my country in the field, I can acquire no military glory; but I may, like Socrates, acquire reputation by wisdom and probity; let me therefore be wise and honest. My figure is very bad; and I should appear but ill as an orator either in the pulpit or at the bar: let me therefore pass my time in my study, either in reading what may improve myself, or in writing what may entertain or instruct others. I have not the strength of Hercules, nor can I rid the world of so many monsters; but perhaps I may get rid of some that infest myself. If I cannot draw out Cacus from his den, I may pluck the villain from my own breast. I cannot cleanse the stable of Augeas: but I may cleanse my own heart from filth and impurity: I may demolish the hydra of vices

within me; and should be careful too, that while I lop off one, I do not suffer more to grow up in its stead. Let me be serviceable in any way that I can: and if I am so, it may, in some measure, be owing to my deformity; which at least should be a restraint on my conduct, lest my conduct make me more deformed."

Few persons have a house entirely to their mind; or the apartments in it disposed as they could wish. And there is no deformed person, who does not wish that his soul had a better habitation; which is sometimes not lodged according to its quality. Lord Clarendon says of Sir Charles Cavendish (brother to the marquis of Newcastle), that he was a man of the noblest and largest mind, though of the least and most inconvenient body that lived. And every body knows, that the late prince of Orange had many amiable qualities. Therefore, in justice to such persons, we must suppose that they did not repine that their tenements were not in a more regular style of architecture. And let every deformed person comfort himself with reflecting, that though his soul hath not the most convenient and beautiful apartment, yet that it is habitable; that the accommodation will serve as an inn upon the road; that he is but tenant for life, or (more properly) at will; and that, while he remains in it, he is in a state to be envied by the deaf, the dumb, the lame, and the blind.

DEFOSSION, (DEFOSSIO), the punishment of burying alive, inflicted among the Romans on vestal virgins guilty of incontinency. It is also a custom among the Hungarians to inflict this punishment on women convicted of adultery. Heretics were also punished in this manner. See BURYING-Alive.

DEGENERATION, or DEGENERATING, in general denotes the growing worse, or losing some valuable qualities whereof a thing was formerly possessed. Some naturalists have been of opinion, that things are capable of degenerating into quite a distinct species; but this is a mere chimera. All that happens in the degeneration of a plant, for instance, is the losing its usual beauty, colour, smell, &c. a circumstance entirely owing to its being planted in an improper soil, climate, &c.

DEGLUTITION, the action of swallowing. See ANATOMY, n^o 104.

DEGRADATION, in our law-books called *disgradation* and *deposition*, the act of depriving or stripping a person for ever of a dignity or degree of honour, and taking away the title, badge, and privileges thereof.

The degradation of a peer, a priest, a knight, a gentleman, an officer, &c. are performed with divers ceremonies. That which anciently obtained in degrading a person from his nobility is very curious. It was practised in the time of Francis I. upon Captain Fangel,

(B) —Optimus hic et formosissimus idem
Gentis Patriciæ rapitur miser extinguendus
Messalinæ oculis. — Juv. Sat. x.

(c) Hunc optent generum Rex et Regina: puellæ
Hunc raptant: quicquid calcaverit hic, rosa fiat:
Ast ego nutrici non mando vota; negato

Jupiter hæc illi — Pers. Sat. ii.
(D) —Quid profuit olim

Hippolyto grave propositum? Quid Bellerophonti
Erubuit nempe hæc, seu fastidia repulsæ:
Nec Sthenobœa minus quam Cressa excaudit; et se
Concussere ambæ. — Juv. Sat. x.

Degradation.

Fangel, who had in a cowardly manner given up Fontarabia, whereof he was governor. On this occasion, 20 or 30 cavaliers, without blemish or reproach, were assembled; before whom the gentleman was accused of treason and breach of faith by a king at arms. Two scaffolds were erected; the one for the judges, heralds, and pursuivants; and the other for the guilty cavalier, who was armed at all points, and his shield placed on a stake before him, reversed with the point upwards. On one side assisted 12 priests in surplices, who sung the vigils of the dead. At the close of each psalm they made a pause, during which the officers of arms stripped the condemned of some piece of his armour, beginning with the helmet, and proceeding thus till he was quite disarmed; which done, they broke his shield in three pieces with a hammer. Then the king at arms emptied a basin of hot water on the criminal's head; and the judges, putting on mourning habits, went to the church. This done, the degraded was drawn from off the scaffold with a rope tied under his arm-pits, laid on a bier, and covered with mortuary clothes; the priest singing some of the prayers for the dead; and then he was delivered to the civil judge and the executioner of justice.

For a more domestic instance: Sir Andrew Harclay, earl of Carlisle, being attainted and convicted of treason, 18 Edw. II. *coram rege*; after judgment was pronounced on him, his sword was broken over his head, and his spurs hewn off his heels; Sir Anthony Lucy the judge saying to him, "Andrew, now thou art no knight, but a knave." By stat. 13 Car. II. William Lord Monson, Sir Henry Mildmay, and others, were degraded from all titles of honour, dignities, and pre-eminences, and prohibited to bear or use the title of lord, knight, esquire, or gentleman, or any coat of arms, for ever afterwards. It has been maintained that the king may degrade a peer; but it appears from later authorities, that he cannot be degraded but by act of parliament.

As to ecclesiastics, we have an instance of degradation before condemnation to death, in the eighth century, at Constantinople. It is in the person of the patriarch Constantine, whom Constantine Copronymus caused to be executed. He was made to ascend the ambo; and the patriarch Nicetas sent some of his bishops to strip him of the pallium, and anathematized him: then they made him go out of the church backwards.

But we have a much later instance in our own history: When Cranmer, archbishop of Canterbury, was degraded by order of Queen Mary, they dressed him in episcopal robes, made only of canvas, put the mitre on his head, and the pastoral staff in his hand; and in this attire showed him to the people. Which done, they stripped him again piece by piece. At present they do not stand so much on the ceremony of degradation in order to the putting a priest to death; by reason of the delays and difficulties that it would occasion. Pope Boniface pronounced that six bishops were required to degrade a priest; but the difficulty of assembling so many bishops rendered the punishment frequently impracticable. In England, a priest, after having been delivered to his ordinary, if he cannot purge himself of the crime laid at his door, his gown and other robes are stripped over his ears by the common

hangman; by which he is declared divested of his orders.

It is decided, however, that degradation does not efface the priestly character. Degradation only seems to differ from deposition in a few ignominious ceremonies which custom has added thereto. Accordingly, in the business of Arnoul archbishop of Rheims, sentenced in the council of Orleans, in 991, it was deliberated what form they should follow in the deposition; whether that of the canons, that is, simple deposition; or that of custom, viz. degradation. And it was declared, that he should surrender the ring, pastoral staff, and pallium; but that his robes should not be torn off. In effect, the canons prescribe no more than a mere reading of the sentence. It is the rest, therefore, added thereto by custom, viz. the stripping off the ornaments, and the tearing the pontifical vestments, that properly constitutes degradation.

DEGRADATION, in painting, expresses the lessening the appearance of distant objects in a landscape; in the same manner as they would appear to an eye placed at that distance from them.

DEGREE, in geometry, a division of a circle, including a three hundred and sixtieth part of its circumference.

DEGREE of Latitude. See LATITUDE.

DEGREE of Longitude. See LONGITUDE.

A degree of the meridian on the surface of the globe is variously determined by various observers. Mr Picart measured a degree in the latitude of $49^{\circ} 21'$, and found it equal to 57060 French toises. But the French mathematicians, who have lately examined Mr Picart's operations, assure us, that the degree in that latitude is 57183 toises. Our countryman, Mr Norwood, measured the distance between London and York, and found it 905,751 English feet; and finding the difference of latitudes $2^{\circ} 28'$, determined the quantity of one degree to be 367,196 English feet, or 69 English miles and 288 yards. Mr Maupertuis measured a degree in Lapland, in the latitude of $66^{\circ} 20'$, and found it 57438 toises. A degree was likewise measured at the equator by other French mathematicians, and found to contain 56767.8 toises. Whence it appears, that the earth is not a sphere, but an oblate spheroid.

DEGREE, in the civil and canon law, denotes an interval in kinship, by which proximity and remoteness of blood are computed. See CONSANGUINITY and DESCENT.

DEGREES, in music, are the little intervals whereof the concords or harmonical intervals are composed.

DEGREE, in universities, denotes a quality conferred on the students or members thereof, as a testimony of their proficiency in the arts or sciences, and intitling them to certain privileges.

DEJANIRA, in fabulous history, daughter of Oeneus king of Aetolia, and wife to Hercules. The centaur Nessus endeavouring to ravish her, was slain by Hercules with a poisoned arrow. Nessus, when dying, gave his bloody shirt to Dejanira; assuring her, that it was a sovereign remedy to cure her husband if ever he proved unfaithful. Some time after, Dejanira thinking she had reason to suspect his fidelity, sent him the shirt: which he had no sooner put on, than he was seized with the most excruciating torments. Being unable to support his pains, he retired to mount

Degradation,
||
Dejanira.

Dejection
||
Deism.

Oeta, and erecting a pile of wood set fire to it, and threw himself into the flames; upon which Dejanira killed herself in despair.

DEJECTION, in medicine, the act of voiding the excrements by the anus. See ANATOMY, No. 93.

DEIFICATION, in antiquity. See APOTHEOSIS.

DEIPHON, in fabulous history, a brother of Triptolemus, son of Celeus and Metanira. When Ceres travelled over the world, she stopped at his father's court, and undertook to nurse him and bring him up. To reward the hospitality of Celeus, the goddess began to make his son immortal, and every evening she placed him on burning coals to purify him from whatever mortal particles he still possessed. The uncommon growth of Deiphon astonished Metanira, who wished to see what Ceres did to make him so vigorous. She was frightened to see her son on burning coals; and the shrieks that she uttered disturbed the mysterious operations of the goddess, and Deiphon perished in the flames.

DEISCAL, in the ancient British customs, the name of a ceremony originally used in the druidical worship, and retained in many places down to a very late period, as a civil ceremony towards persons of particular distinction. The temples of the ancient Britons were all circular; and the druids, in performing the public offices of their religion, never neglected to make three turns round the altar, accompanied by all the worshippers. This practice was so habitual to the ancient Britons, that it continued in some places many ages after the druids and their religion were both destroyed. In the Scottish isles, the vulgar never come to the ancient sacrificing and fire-hallowing cairns, but they walk three times round them, from east to west, according to the course of the sun. This sanctified tour, or round by the south, is called *deiscal*, from *deas* or *deis*, "the right-hand," and *soil* or *sol*, "the sun;" the right-hand being ever next the heap or cairn. In the same isles it is the custom and fashion of the people to testify their respect for their chieftains, the proprietors of their several isles, and other persons of distinction, by performing the deiscal round them in the same manner. A gentleman giving an account of his reception in one of the western islands, of which he was proprietor, describes the ceremony of the deiscal in this manner: "One of the natives would needs express his high esteem for my person, by making a turn round about me sun-ways, and at the same time blessing me, and wishing me all happiness. But I bid him let alone that piece of homage, telling him I was sensible of his good meaning towards me. But this poor man was very much disappointed, as were also his neighbours; for they doubted not but this ancient ceremony would have been very acceptable to me; and one of them told me that this was a thing due to my character from them, as to their chief and patron; and that they could not, and would not, fail to perform it."

DEISM, the doctrine or belief of the deists. Deism, from *Deos*, God, may properly be used to denote natural religion, as comprehending those truths which have a real foundation in reason and nature; and in this sense it is so far from being opposite to Christianity, that it is one great design of the gospel to illu-

strate and enforce it. Thus some of the deistical writers have affected to use it. But deism more precisely signifies that system of religion, relating both to doctrine and practice, which every man is to discover for himself by the mere force of natural reason, independent of all revelation, and exclusive of it; and this religion Dr Tindal and others pretend is so perfect, as to be incapable of receiving any addition or improvement even from divine revelation.

DEISTS, a class of people known also under the denomination of *Free-thinkers*, whose distinguishing character it is, not to profess any particular form or system of religion; but only to acknowledge the existence of a god, and to follow the light and law of nature, rejecting revelation, and opposing Christianity.

This name seems to have been first assumed as the denomination of a party about the middle of the 16th century, by some gentlemen in France and Italy, who were desirous of thus disguising their opposition to Christianity by a more honourable appellation than that of atheists. Viret, an eminent reformer, mentions certain persons in his epistle dedicatory prefixed to the second tome of his *Instruction Chretienne*, published in 1563, who called themselves by a new name, that of *Deists*. These, he tells us, professed to believe in God, but showed no regard to Jesus Christ, and considered the doctrine of the apostles and evangelists as fables and dreams. He adds, that they laughed at all religion, though they outwardly conformed to the religion of those with whom they lived, or whom they wished to please, or feared to offend. Some, he observes, professed to believe the immortality of the soul; others denied both this doctrine and that of providence. Many of them were considered as persons of acute and subtle genius, and took pains in disseminating their notions.

The deists hold, that, considering the multiplicity of religions, the numerous pretences to revelation, and the precarious arguments generally advanced in proof thereof, the best and surest way is to return to the simplicity of nature and the belief of one God; which is the only truth agreed to by all nations. They complain, that the freedom of thinking and reasoning is oppressed under the yoke of religion; and that the minds of men are ridden and tyrannized by the necessity imposed on them of believing inconceivable mysteries; and contend that nothing should be required to be assented to or believed but what their reason clearly conceives.

The distinguishing character of modern deists is, that they reject all revealed religion, and discard all pretences to it as the effects of imposture or enthusiasm. They profess a regard for natural religion, though they are far from being agreed in their notions concerning it. They are classed by some of their own writers into mortal and immortal deists: the latter acknowledging a future state; and the former denying it, or representing it as very uncertain.

Dr Clarke distinguishes four sorts of deists. 1. Those who pretend to believe the existence of an eternal, infinite, independent, intelligent Being who made the world, without concerning himself in the government of it. 2. Those who believe the being and natural providence

Deists.

Deity.

providence of God, but deny the difference of actions as morally good or evil, resolving it into the arbitrary constitution of human laws; and therefore they suppose that God takes no notice of them. With respect to both these classes, he observes that their opinions can consistently terminate in nothing but downright atheism. 3. Those who having right apprehensions concerning the nature, attributes, and all-governing providence of God, seem also to have some notion of his moral perfections; though they consider them as transcendent, and such in nature and degree, that we can form no true judgment, nor argue with any certainty concerning them; but they deny the immortality of human souls; alledging that men perish at death, and that the present life is the whole of human existence. 4. Those who believe the existence, perfections, and providence of God, the obligations of natural religion, and a state of future retribution, on the evidence of the light of nature, without a divine revelation; such as these, he says, are the only true deists; but their principles, he apprehends, should lead them to embrace Christianity; and therefore he concludes that there is now no consistent scheme of deism in the world.

The first deistical writer of any note that appeared in this country was Herbert baron of Cherbury. He lived and wrote in the last century. His book *De Veritate* was first published at Paris in 1624. This, together with his book *De Causis Errorum*, and his treatise *De Religione Laici*, were afterwards published in London. His celebrated work *De Religione Gentilium* was published at Amsterdam in 1663 in 4to, and in 1700 in 8vo, and an English translation of it was published at London in 1705. As he was one of the first that formed deism into a system, and asserted the sufficiency, universality, and absolute perfection of natural religion, with a view to discard all extraordinary revelation as useless and needless, we shall subjoin the five fundamental articles of this universal religion. They are these: 1. That there is one supreme God. 2. That he is chiefly to be worshipped. 3. That piety and virtue are the principal part of his worship. 4. That we must repent of our sins; and if we do so, God will pardon them. 5. That there are rewards for good men and punishments for bad men, both here and hereafter. Our own age has produced a number of advocates in the same cause; and however they may have differed among themselves, they have been agreed in their attempts of invalidating the evidence and authority of divine revelation. We might mention Hobbes, Blount, Toland, Collins, Woollaston, Tindal, Morgan, Chubb, Lord Bolingbroke, Hume, &c. Some have also added Lord Shaftesbury to the number.

But the friends of Christianity have no reason to regret the free and unreserved discussion which their religion has undergone. Objections have been stated and urged in their full force, and as fully answered; argument and raillery have been repelled; and the controversy between Christians and deists has called forth a great number of excellent writers, who have illustrated both the doctrines and evidence of Christianity in a manner that will ever reflect honour on their names, and be of lasting service to the cause of genuine religion and the best interests of mankind.

DEITY, *Godhead*; a common appellation given to God; and also by the poets to the heathen gods and goddesses.

Deity
Delaware.

DELAWARE, a province of North America, situated on a river of the same name.

The Dutch, under the pretended purchase made by Henry Hudson, took possession of the lands on both sides the river Delaware; and as early as the year 1623, built a fort at the place, which has since been called *Gloucester*. In 1627, by the influence of William Ufeling, a respectable merchant in Sweden, a colony of Swedes and Finns came over, furnished with all the necessaries for beginning a new settlement, and landed at Cape Henlopen; at which time the Dutch had wholly quitted the country. The Dutch, however, returned in 1630, and built a fort at Lewistown, by them named *Hoarkill*. The following year the Swedes built a fort near Wilmington, which they called *Christein* or *Christiana*. Here also they laid out a small town, which was afterwards demolished by the Dutch. The same year they erected a fort higher up the river, upon Tenecum island, which they called *New Gottenburgh*; they also about the same time built forts at Chester, Elsinburgh, and other places. John Prinz then governed the Swedes, who, in 1654, deputed his son-in-law, John Papgoia, and returned to Sweden. Papgoia soon followed his father-in-law to his native country, and John Ryfing succeeded to the government. In 1655, the Dutch, under the command of Peter Stuyvesant, arrived in Delaware river, from New Amsterdam (New York), in seven vessels, with 6 or 700 men. They dispossessed the Swedes of their forts on the river, and carried the officers and principal inhabitants prisoners to New Amsterdam, and from thence to Holland. The common people submitted to the conquerors, and remained in the country. On the first of October 1664, Sir Robert Carr obtained the submission of the Swedes on Delaware river. Four years after, Col. Nicolls, governor of New York, with his council, on the 21st of April, appointed a scout and five other persons to assist Capt. Carr in the government of the country. In 1672, the town of Newcastle was incorporated by the government of New York, to be governed by a bailiff and six assistants; after the first year, the four oldest were to leave their office, and four others to be chosen. The bailiff was president, with a double vote; the constable was chosen by the bench. They had power to try causes not exceeding L. 10, without appeal. The office of scout was converted into that of sheriff, who had jurisdiction in the corporation and along the river, and was annually chosen. They were to have a free trade, without being obliged to make entry at New York, as had formerly been the practice. Wampum was at this time the principal currency of the country. Governor Lovelace of New York, by proclamation, ordered that four white grains and three black ones should pass for the value of a silver or penny. This proclamation was published at Albany, Esopus, Delaware, Long Island, and the parts adjacent. In 1674 Charles II. by a second patent, dated June 29th, granted to his brother duke of York all that country called by the Dutch *New Netherlands*, of which the three counties of Newcastle, Kent, and Sussex were a part. In 1683, the duke of York, by deed dated August 24th, sold

Delaware. sold to William Penn the town of Newcastle, with the district of 12 miles round the same; and by another deed of the same date, granted to him the remainder of the territory, which, till the revolution, was called the *Three Lower Counties*. These three counties were considered as a part of Pennsylvania in matters of government. The same governor presided over both: but the assembly and courts of judicature were different; different as to their constituent members, but in form nearly the same. At the late revolution they became a distinct territory, called

The *Delaware State*. This state is bounded on the north by the territorial line which divides it from Pennsylvania; on the east, by Delaware river and bay; on the south, by a due east and west line, from Cape Henlopen, in lat. 38. 30. to the middle of the peninsula; and on the west by Maryland. The climate is in many parts unhealthy. The land is generally low and flat, which occasions the waters to stagnate, and the consequence is, the inhabitants are subject to intermit-
tents.

The Delaware state is divided into three counties, viz. Newcastle, Kent, Sussex; the chief towns of which are, Wilmington and Newcastle, Dover, Milford, and Lewistown.

Three rivers, the Choptank, Nanticok, and Pocomoke, have their sources in this state, and are navigable for vessels of 50 or 60 tons, 20 or 30 miles into the country. They all run a westwardly course into Chesapeake Bay. The fourth part of the state is a low flat country, and a considerable portion of it lies in forest. What is under cultivation is chiefly barren, except in Indian corn, of which it produces fine crops. In some places rye and flax may be raised, but wheat is a foreigner in these parts. Where nature is deficient in one resource, she is generally bountiful in another. This is verified in the tall thick forests of pines which are manufactured into boards, and exported in large quantities into every sea-port in the three adjoining states.—As you proceed north, the soil is more fertile, and produces wheat in large quantities, which is the staple commodity of the state. They raise all the other kinds of grain common to Pennsylvania. The state has no mountain in it, except Thunder Hill, in the western part of Newcastle county, and is generally level, except some small parts, which are stony and uneven. The trade of this state, which is inconsiderable, is carried on principally with Philadelphia, in boats and shallops. The articles exported are principally wheat, corn, lumber, and hay.

There are, in this state, 21 Presbyterian congregations, belonging to the synod of Philadelphia: seven Episcopal churches; six congregations of Baptists, containing about 218 souls; four congregations of the people called *Quakers*; besides a Swedish church at Wilmington, which is one of the oldest churches in the United States, and a number of Methodists. All these denominations have free toleration by the constitution, and live together in harmony.

In the convention held at Philadelphia, in the summer of 1787, the inhabitants of Delaware were reckoned at 37,000, which is about 26 for every square mile. There is no obvious characteristic difference between the inhabitants of this state and the Pennsylvanians.

See PENNSYLVANIA.

Delaware. Under the present constitution, the legislature is divided into two distinct branches, which together are styled *The General Assembly of Delaware*. One branch, called the *House of Assembly*, consists of seven representatives from each of the three counties, chosen annually by the freeholders. The other branch, called the *Council*, consists of nine members, three for a county, who must be more than 25 years of age, chosen likewise by the freeholders. A rotation of members is established by displacing one member for a county at the end of every year. All money bills must originate in the house of Assembly, but they may be altered, amended, or rejected, by the legislative council. A president or chief magistrate is chosen by the joint ballot of both houses, and continues in office three years; at the expiration of which period, he is ineligible the three succeeding years. If this office becomes vacant during the recess of the legislature, or he is unable to attend to business, the speaker of the legislative council is vice-president for the time; and in his absence, the powers of the president devolve upon the speaker of the assembly. A privy council, consisting of four members, two from each house, chosen by ballot, is constituted to assist the chief magistrate in the administration of the government. The three justices of the supreme court, a judge of admiralty, and four justices of the common pleas and orphans courts, are appointed by the joint ballot of the president and general assembly, and commissioned by the president to hold their offices during good behaviour. The president and privy council appoint the secretary, the attorney-general, registers for the probate of wills, registers in chancery, clerks of the common pleas, and orphans courts, and the clerks of the peace, who hold their offices during five years, unless sooner removed for mal-conduct. The house of assembly name 24 persons in each county for justices of peace, from which number the president, with the advice of his council, appoints and commissions twelve, who serve for seven years, unless sooner dismissed for mal-administration. The members of the legislative and privy councils are justices of the peace for the whole state.—The courts of common pleas and orphans courts have power to hold chancery courts in certain cases. The clerk of the supreme court is appointed by the chief justice, and the recorders of deeds, by the justices of the common pleas, for five years, unless sooner dismissed. All the military and marine officers are appointed by the general assembly. The court of appeals consists of seven persons; the president, who is a member, and presides by virtue of his office, and six others, three to be chosen by the legislative council, and three by the house of assembly. To this court appeals lie from the supreme court, in all matters of law and equity. The judges hold their office during good behaviour.

The justices of the several courts, the members of the privy council, secretary, trustees of the loan office, clerks of the common pleas, and all persons concerned in army or navy contracts, are ineligible to either house of assembly. Every member, before taking his seat, must take the oath of allegiance, and subscribe a religious test, declaring his belief in God the Father, in Jesus Christ, and the Holy Ghost; and in the inspiration of the Scriptures.

The house of assembly have the privilege of impeaching.

Delegate
||
Delen.

peaching delinquent officers of government; and im-
peachments are to be prosecuted by the attorney ge-
neral, or other persons appointed by the assembly, and
tried before the legislative council. The punishment
may extend to temporary or perpetual disability to
hold offices under government, or to such other pen-
alties as the laws shall direct.

There is, in Delaware, no establishment of one re-
ligious sect in preference to another; nor can any
preacher or clergyman, while in his pastoral employ-
ment, hold any civil office in the state.

DELEGATE, in a general sense, a deputy or com-
missioner.

DELEGATES, commissioners appointed by the king
under the great seal, to hear and determine appeals
from the ecclesiastical court.

Court of DELEGATES, the great court of appeal in
all ecclesiastical causes. These delegates are appointed
by the king's commission under his great seal, and is-
suing out of chancery, to represent his royal person,
and hear all appeals to him made by virtue of the sta-
tute 25 Henry VIII. c. 19. This commission is usual-
ly filled with lords spiritual and temporal, judges of
the courts at Westminster, and doctors of the civil
law. Appeals to Rome were always looked upon by
the English nation, even in the times of Popery, with
an evil eye, as being contrary to the liberty of the sub-
ject, the honour of the crown, and the independence of
the whole realm; and were first introduced in very
turbulent times, in the 16th year of king Stephen
(A. D. 1151), at the same period (Sir Henry Spel-
man observes) that the civil and canon laws were first
imported into England. But in a few years after, to
obviate this growing practice, the constitutions made
at Clarendon, 11 Hen. II. on account of the distur-
bances raised by Archbishop Becket and other zealots of
the holy see, expressly declare, that appeals in causes
ecclesiastical ought to lie from the archdeacon to the
diocesan; from the diocesan to the archbishop of the
province; and from the archbishop to the king; and
are not to proceed any farther without special licence
from the crown. But the unhappy advantage that was
given in the reign of king John, and his son Hen. III.
to the encroaching power of the Pope, who was ever
vigilant to improve all opportunities of extending his
jurisdiction to Britain, at length rivetted the custom
of appealing to Rome in causes ecclesiastical so strong-
ly, that it never could be thoroughly broken off, till
the grand rupture happened in the reign of Hen. VIII.
when all the jurisdiction usurped by the Pope in mat-
ters ecclesiastical was restored to the crown, to which
it originally belonged: so that the statute 25 Hen. VIII.
was but declaratory of the ancient law of the realm.
But in case the king himself be party in any of these
suits, the appeal does not then lie to him in chancery,
which would be absurd; but, by the 24 Henry VIII.
c. 12. to all the bishops of the realm, assembled in the
upper house of convocation.

DELEGATION, a commission extraordinary gi-
ven by a judge to take cognisance of, and determine
some cause which ordinarily does not come before him.

DELEGATION, in Scots law, See LAW. N^o clxxvii. 8.

DELEN (Dirk Van), an eminent painter of ar-
chitecture and perspective, was born at Heusden,
but in what year is not known. He was a disciple of

Francis Hals, in whose school he practised to paint
those particular subjects which were most esteemed by
that master, such as portraits and conversations; and
by that means he acquired the skill to design figures
with a great deal of spirit and correctness. But his
predominant inclination directed him to paint archi-
tecture and perspective; and those he studied with so
much care, as to make his works admired and co-
veted through the Low Countries. His subjects were
the insides of churches, filled with figures; grand tem-
ples; magnificent saloons and galleries, with people
assembled at concerts of music, feasting, or dancing.
Those subjects he finished highly: his architecture
was in a noble taste; and the figures were well design-
ed, as well as grouped with a great deal of judgment.
Several authors mention the performances of this mas-
ter with large commendation, for the goodness of his
invention, and neatness of his handling.

DELETERIOUS, an appellation given to things
of a destructive or poisonous nature. See POISON.

DELFT, a town of the united provinces, and capi-
tal of Delftland in Holland. It is a pretty large place,
very clean and well built, with canals in the streets,
planted on each side with trees. The public buildings,
especially the town-houses, are very magnificent. Here
are two churches: in one is the tomb of the prince of
Orange, who was assassinated; and in the other, that
of Admiral Tromp. It has a fine arsenal, well furnish-
ed; is about two miles in circumference, and is de-
fended against inundations by three dams or dikes.
Here is made a prodigious quantity of fine earthen
ware called *delft-ware*; but the town has no other
trade. It is pleasantly situated among the meadows
on the river Schie, in E. Long. 4. 13. N. Lat. 32. 6.

DELFT-Ware, a kind of pottery of baked earth, co-
vered with an enamel or white glazing, which gives it
the appearance and neatness of porcelain. Some kinds
of this enamelled pottery differ much from others, ei-
ther in their sustaining sudden heat without breaking,
or in the beauty and regularity of their forms, of their
enamel, and of the painting with which they are or-
namented. In general, the fine and beautiful enamel-
led potteries, which approach the nearest to porcelain
in external appearance, are at the same time those
which least resist a brisk fire. Again, those which
sustain a sudden heat, are coarse, and resemble com-
mon pottery.

The basis of this pottery is clay, which is to be
mixed, when too fat, with such a quantity of sand, that
the earth shall preserve enough of its ductility to be
worked, moulded, and turned easily; and yet that its
fatness shall be sufficiently taken from it, that it may
not crack or shrink too much in drying or in baking.
Vessels formed of this earth must be dried very gently
to avoid cracking. They are then to be placed in a
furnace to receive a slight baking, which is only meant
to give them a certain consistence or hardness. And,
lastly, they are to be covered with an enamel or glazing,
which is done, by putting upon the vessels thus prepa-
red the enamel, which has been ground very fine, and
diluted with water.

As vessels on which the enamel is applied are but
slightly baked, they readily imbibe the water in which
the enamel is suspended, and a layer of this enamel ad-
heres to their surface: these vessels may then be painted
with

Deleterious,
Delft.

Delft.

with colours composed of metallic calces, mixed and ground with a fusible glass. When they are become perfectly dry, they are to be placed in the furnace, included in cases of baked earth called *seggars*, and exposed to a heat capable of fusing uniformly the enamel which covers them.—This heat given to fuse the enamel being much stronger than that which was applied at first to give some consistence to the ware, is also the heat necessary to complete the baking of it. The furnace and colours used for painting this ware, are the same as those employed for PORCELAIN. The glazing, which is nothing but white enamel, ought to be so opaque as not to show the ware under it. There are many receipts for making these enamels: but all of them are composed of sand or flints, vitrifying salts, calx of lead, and calx of tin; and the sand must be perfectly vitrified, so as to form a glass considerably fusible. Somewhat less than an equal part of alkaline salt, or twice its weight of calx of lead, is requisite to effect such vitrifications of sand. The calx of tin is not intended to be vitrified, but to give a white opaque colour to the mass: and one part of it is to be added to three or four parts of all the other ingredients taken together. From these general principles, various enamels may be made to suit the different kinds of earths. To make the enamel, lead and tin are calcined together with a strong fire; and the sand is also to be made into a fritt with the salts or ashes. The whole is then to be well mixed and ground together. The matter is then to be placed under the furnace, where it is melted and vitrified during the baking of the ware. It is next to be ground in a mill, and applied as above directed.

Chim.
Dist.

The preparation of the white enamel is a very essential article in making delft-ware, and one in which many artists fail. M. Bosc. d'Antic, in a memoir concerning this kind of ware, published in the *Mem. des Scavans Etrang. tom. 6.* recommends the following proportions. An hundred pounds of calx of lead are to be mixed with about a seventh part of that quantity of calx of tin for common delft-ware, or a fourth part of calx of tin for the finest kind; an hundred, or an hundred and ten, pounds of fine sand; and about twenty or thirty pounds of sea-salt.—Concerning the earth of which the ware is made, he observes, that pure clay is not a proper material when used alone. Different kinds of earth mixed together are found to succeed better. Pieces of ware made of clay alone, are found to require too much time to dry; and they crack, and lose their form, unless they are made exceedingly thick. An addition of marle diminishes the contraction of the clay; renders it less compact; and allows the water to escape, without altering the form of the ware in drying. It affords also a better ground for the enamel: which appears more glossy and white than when laid on clay alone.—The kinds of clay which are chiefly used in the composition of delft-ware, are the blue and green. A mixture of blue clay and marle would not be sufficiently solid, and would be apt to scale, unless it were exposed to a fire more intense than what is commonly used for the burning of delft-ware. To give a greater solidity, some red clay is added; which, on account of its ferruginous matter, possesses the requisite binding quality. The proportions of these ingredients vary in different works, according to the difference.

N° 98.

ferent qualities of the earths employed. Three parts of blue clay, two parts of red clay, and five parts of marle, form the composition used in several manufactories. M. d'Antic thinks, that the best delft-ware might be made of equal parts of pure clay and pure calcareous earth; but this composition would require that the fire should be continued twice as long as it generally is.

DELIA, in antiquity, a festival celebrated every fifth year in the island of Delos, in honour of Apollo. It was first instituted by Theseus, who at his return from Crete placed a statue there, which he had received from Ariadne. At the celebration they crowned the statue of the goddess with garlands, appointed a choir of music, and exhibited horse-races. They afterwards led a dance, in which they imitated by their motions the various windings of the Cretan labyrinth, from which Theseus had extricated himself by Ariadne's assistance.—There was another festival of the same name yearly celebrated by the Athenians in Delos. It also was instituted by Theseus, who, when he was going to Crete, made a vow, that if he returned victorious, he would yearly visit in a solemn manner the temple of Delos. The persons employed in this annual procession were called *Deliasæ* and *Theori*. The ship, the same which carried Theseus, and had been carefully preserved by the Athenians, was called *Theoria* and *Delias*. When the ship was ready for the voyage, the priest of Apollo solemnly adorned the stern with garlands, and an universal lustration was made all over the city. The *Theori* were crowned with laurels, and before them proceeded men armed with axes, in commemoration of Theseus, who had cleared the way from Trœzen to Athens, and delivered the country from robbers. When the ship arrived at Delos, they offered solemn sacrifices to the god of the island, and celebrated a festival to his honour. After this they retired to their ship and sailed back to Athens, where all the people of the city ran in crowds to meet them. Every appearance of festivity prevailed at their approach, and the citizens opened their doors, and prostrated themselves before the *Deliasæ* as they walked in procession. During this festival it was unlawful to put to death any malefactor, and on that account the life of Socrates was prolonged for thirty days.

DELIA, a surname of Diana, because she was born in Delos.

DELIAC, DELIACUS, among the ancients, denoted a poulterer, or a person who sold fowls, fatted capons, &c. The traders in this way were called *Deliaci*; the people of the isle of Delos first practised this occupation. They also sold eggs, as appears from Cicero, in his Academic Questions, lib. iv. Pliny, lib. x. chap. 30. and Columella, lib. viii. cap. 8. likewise mention the *Deliaci*.

DELIBAMENTA, in antiquity, a libation to the infernal gods, always offered by pouring downwards.

Jus DELIBERANDI. See LAW, N° clxxx. 23.

DELIBERATIVE, an appellation given to a kind or branch of rhetoric, employed in proving a thing, or convincing an assembly thereof, in order to persuade them to put it in execution.

To have a DELIBERATIVE voice in the assembly, is when a person has a right to give his advice and his vote

Delia
||
Deliberative.

See Libation.

Delict,
||
Delirium.

vote therein. In councils, the bishops have deliberative voices; those beneath them have only consultative voices.

DELICT, in Scots law, signifies such small offences or breaches of the peace as are punishable only by fine or short imprisonment.

DELIMA, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking with those of which the order is doubtful. There is no corolla; the calyx is five-leaved, with a two-seeded berry.

DELINQUENT, a guilty person, or one who has committed some fault or offence for which he is punishable. See BRITAIN, No. 97.

DELIQUESCENT, in chemistry, signifies the property which certain bodies have of attracting moisture from the air, and becoming liquid thereby. This property is never found but in saline substances, or matters containing them. It is caused by the great affinity which these substances have with water. The more simple they are, according to Mr Macquer, the more they incline to deliquescence. Hence, acids, and certain alkalies, which are the most simple, are also the most deliquescent salts. Mineral acids are so deliquescent, that they strongly imbibe moisture from the air, even though they are already mixed with a sufficient quantity of water to be fluid. For this purpose, it is sufficient that they be concentrated only to a certain degree.—Many neutral salts are deliquescent, chiefly those whose bases are not saline substances. Salts formed by the vitriolic acid, with fixed or volatile alkalies, earths, or most metallic substances, are not deliquescent; although this acid is the strongest of all, and, when disengaged, attracts the moisture of the air most powerfully.

Though the immediate cause of deliquescence is the attraction of the moisture of the air, as we have already observed; yet it remains to be shown why some salts attract this moisture powerfully, and others, though seemingly equally simple, do not attract it at all. The vegetable alkali, for instance, attracts moisture powerfully; the mineral alkali, though to appearance equally simple, does not attract it at all. The acid of tartar by itself does not attract the moisture of the air; but if mixed with borax, which has a little attraction for moisture, the mixture is exceedingly deliquescent.—Some theories have been suggested, in order to account for these and other similar facts; but we are as yet too little acquainted with the nature of the atmosphere, and the relation its constituent parts have to those of terrestrial substances, to determine any thing with certainty on this head.

DELIQUIUM, or DELIQUIUM *Animi* (from *delinquo*, "I swoon"), a swooning or fainting away; called also *syncope*, *lipothymia*, *lipopsychia*, *eclysis*, and *apophyxia*.

DELIQUIUM (from *deliquesco*, "to be dissolved"), in chemistry, is the dissolution or melting of a salt or calx by suspending it in a moist cellar.

Salt of tartar, or any fixed alkali, set in a cellar or other cool moist place, and in an open vessel, resolves or runs into a kind of liquor called by the chemists oil of tartar *per deliquium*.

DELIRIUM (from *deliro*, "to rave or talk idly"). When the ideas excited in the mind do not correspond

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to the external objects, but are produced by the change induced on the common sensory, the patient is said to be delirious. See MEDICINE-Index.

DELIVERY, or CHILD-BIRTH. See MIDWIFERY.

DELLI, or DELHI, a kingdom and city of the Mogul's empire, in Asia. The city is one of the capitals of the empire. The road between it and *Agra*, the other capital, is that famous alley or walk planted with trees by Jehin Ghir, and 150 leagues in length. Each half league is marked with a kind of turret; and at every stage there are little sarays or caravanseras for the benefit of travellers. The road, though pretty good, has many inconveniences. It is not only frequented by wild beasts, but by robbers. The latter are so dexterous at casting a noose about a man's neck, that they never fail, if within reach, to seize and strangle him. They gain their point likewise by means of handsome women; who, feigning great distress, and being taken up behind the unwary traveller, choak him with the same snare.—The capital consists of three cities, built near one another. The first, now quite destroyed, is said to have had 52 gates: and to have been the residence of king Porus, conquered by Alexander the Great. The second, which is also in ruins, was demolished by Shah Jehan, to build *Jehan-abad* with the materials. This makes the third city, and joins the ruins of the second. This city stands in an open plain country, on the river *Jamna*, which rises in this province. It is encompassed with walls, except towards the river. These are of brick, flanked with round towers; but without a ditch, and terraced behind, four or five feet thick. The circumference of the walls may be about nine miles. The fortress, which is a mile and an half in circuit, has good walls and round towers, and ditches full of water, faced with stone. It is surrounded with fine gardens, and in it is the Mogul's palace. See INDOSTAN. E. Long. 79. 25. N. Lat. 28. 20.

DELMENHORST, a strong town of Germany, in the circle of Westphalia, and county of Oldenburgh, belonging to Denmark; seated on the river Deim near the Weser. E. Long. 8. 37. N. Lat. 53. 10.

DELOS, an island of the Archipelago, very famous in ancient history. Originally it is said to have been a floating island, but afterwards it became fixed and immovable. It was held sacred on account of its being the birth-place of Apollo and Diana.—Anciently this island was governed by its own kings. Virgil mentions one Anius reigning here in the time of the Trojan war. He was, according to that poet, both king and high-priest of Apollo, and entertained Æneas with great kindness. The Persians allowed the Delians to enjoy their ancient liberties, after they had reduced the rest of the Grecian islands. In after ages, the Athenians made themselves masters of it; and held it till they were driven out by Mithridates the Great, who plundered the rich temple of Apollo, and obliged the Delians to side with him. Mithridates was in his turn driven out by the Romans, who granted the inhabitants many privileges, and exempted them from all sorts of taxes. At present it is quite abandoned; the lands being covered with ruins and rubbish in such a manner as to be quite incapable of cultivation. The inhabitants of Mycone hold it now, and pay but ten crowns land-tax to the Grand Signior for an island

Delivery,
||
Delos.

Delos.

which was once one of the richest in the world.—Strabo and Callimachus tell us that the island of Delos was watered by the river Inapus: but Pliny calls it only a spring; and adds, that its waters swelled and abated at the same time with those of the Nile. At present there is no river in the island, but one of the noblest springs in the world; being twelve paces in diameter, and inclosed partly by rocks and partly by a wall. Mount Cynthus, whence Apollo had the surname of *Cynthius*, is by Strabo placed near the city, and said to be so high, that the whole island was covered by its shadow; but our modern travellers speak of it as an hill of a very moderate height. It is but one block of granite of the ordinary sort, cut on that side which faced the city into regular steps, and inclosed on both sides by a wall. On the top of the mountain are still to be seen the remains of a stately building, with a mosaic pavement, many broken pillars, and other valuable monuments of antiquity. From an inscription discovered there some time ago, and which mentions a vow made to Serapis, Isis, and Anubis, some have conjectured, that on this hill stood a temple dedicated to these Egyptian deities, though no where mentioned in history.—The city of Delos, as is manifest from the magnificent ruins still extant, took up that spacious plain reaching from one coast to the other. It was well peopled, and the richest city in the Archipelago, especially after the destruction of Corinth; merchants flocking thither from all parts, both in regard of the immunity they enjoyed there, and of the convenient situation of the place between Europe and Asia. Strabo calls it one of the most frequented empories in the world; and Pliny tells us, that all the commodities of Europe and Asia were sold, purchased, or exchanged, there. It contained many noble and stately buildings; as the temples of Apollo, Diana, and Latona; the porticoes of Philip of Macedon, and Dionysius Eutyches; a gymnasium; an oval basin made at an immense expence, for the representation of sea-fights; and a most magnificent theatre. The temple of Apollo was, according to Plutarch, begun by *Eryfichton* the son of Cecrops; but afterwards enlarged and embellished at the common charge of all the states of Greece. Plutarch tells us, that it was one of the most stately buildings in the universe; and speaks of an altar in it, which, in his opinion, deserved a place among the wonders of the world. It was built with the horns of various animals, so artificially adapted to one another, that they hanged together without any cement. This altar is said to have been a perfect cube; and the doubling it was a famous mathematical problem among the ancients. This went under the name of *Problema Deliacum*; and is said to have been proposed by the oracle, for the purpose of freeing the country from a plague. The distemper was to cease when the problem was solved.—The trunk of the famous statue of Apollo, mentioned by Strabo and Pliny, is still an object of great admiration to travellers. It is without head, feet, arms, or legs; but from the parts that are yet remaining, it plainly appears, that the ancients did not exaggerate when they commended it as a wonder of art. It was of a gigantic size; though cut out of a single block of marble; the shoulders being six feet broad, and the thighs nine feet round. At a small distance from this statue lies, amongst confused heaps

Delos,
Delphi.

of broken columns, architraves, bases, chapiters, &c. a square piece of marble 15½ feet long, ten feet nine inches broad, and two feet three inches thick: which undoubtedly served as a pedestal for this colossus. It bears in very fair characters this inscription in Greek, “The Naxians to Apollo.” Plutarch tells us, in the life of Nicias, that he caused to be set up, near the temple of Delos, an huge palm-tree of brass, which he consecrated to Apollo; and adds, that a violent storm of wind threw down this tree on a colossian statue raised by the inhabitants of Naxos. Round the temple were magnificent porticoes built at the charge of various princes, as appears from inscriptions which are still very plain. The names of Philip king of Macedon, Dionysius Eutyches, Mithridates Euergetes, Mithridates Eupator, kings of Pontus, and Nicomedes king of Bithynia, are found on several pedestals.—To this temple the inhabitants of the neighbouring islands sent yearly a company of virgins to celebrate, with dancing, the festival of Apollo and his sister Diana, and to make offerings in the name of their respective cities.

So very sacred was the island of Delos held by the ancients, that no hostilities were practised here, even by the nations that were at war with one another, when they happened to meet in this place. Of this Livy gives an instance. He tells us, that some Roman deputies being obliged to put in at Delos, in their voyage to Syria and Egypt, found the galleys of Perseus king of Macedon, and those of Eumenes king of Pergamus, anchored in the same harbour, though these two princes were then making war upon one another.—Hence this island was a general asylum, and the protection extended to all kinds of living creatures; for this reason it abounded with hares, no dogs being suffered to enter it. No dead body was suffered to be buried in it, nor was any woman suffered to lie-in there; all dying persons, and women ready to be delivered, were carried over to the neighbouring island of Rhenæa.

DELPHI, (anc. geog.), a town of Phocis, situated on the south-west extremity of mount Parnassus. It was famous for a temple and oracle of that god, of which the following was said to be the origin: A number of goats that were feeding on mount Parnassus, came near a place which had a deep and long perforation. The steam which issued from the hole seemed to inspire the goats, and they played and frisked about in such an uncommon manner, that the goat-herd was tempted to lean on the hole, and see what mysteries the place contained. He was immediately seized with a fit of enthusiasm, his expressions were wild and extravagant, and passed for prophecies. This circumstance was soon known about the country, and many experienced the same enthusiastic inspiration. The place was revered; a temple was soon after erected in honour of Apollo; and a city built, which became the chief and most illustrious in Phocis. The influence of its god has troubled the councils of states, directed the course of armies, and decided the fate of kingdoms. The ancient history of Greece is full of his energy, and an early register of his authority. The circumjacent cities were the stewards and guardians of the god. Their deputies composed the famous Amphictyonic assembly, which once guided Greece.

The temple of Apollo, it is related, was at first a kind

Delphi.

kind of cottage covered with boughs of laurel; but he was early provided with a better habitation. An edifice of stone was erected by Trophonius and Agamemdes, which subsisted about 700 years, and was burned in the year 636 after the taking of Troy, and 548 before Christ. It is mentioned in the hymn to Apollo ascribed to Homer. An opulent and illustrious family, called *Alcmaonidae*, which had fled from Athens and the tyrant Hippias, contracted with the deputies for the building of a new temple, and exceeded their agreement. The front was raised with Parian marble, instead of the stone called *Porus*; which resembled it in whiteness, but was not so heavy. A Corinthian was the architect. The pediments were adorned with Diana, and Latona, and Apollo, and the Muses; the setting of Phœbus or the sun; with Bacchus, and the women called *Thyades*. The architraves were decorated with golden armour; bucklers suspended by the Athenians after the battle of Marathon, and shields taken from the Gauls under Brennus. In the portico were inscribed the celebrated maxims of the seven sages of Greece. There was an image of Homer, and in the cell was an altar of Neptune, with statues of the Fates, and of Jupiter and Apollo, who were surnamed *Leaders of the Fates*. Near the hearth, before the altar at which Neoptolemus the son of Achilles was slain by a priest, stood the iron chair of Pindar. In the sanctuary was an image of Apollo gilded. The inclosure was of great extent, and filled with treasuries, in which many cities had consecrated tenths of spoil taken in war, and with the public donations of renowned states in various ages. It was the grand repository of ancient Greece, in which the labours of the sculptor and statuary, gods, heroes, and illustrious persons, were seen collected and arranged; the inequalities of the area of acclivity contributing to a full display of the noble assemblage.

The oracles were delivered by a priestess called Pythia, who received the prophetic influence in the following manner. A lofty tripod, decked with laurel, was placed over the aperture, whence the sacred vapour issued. The priestess, after washing her body, and especially her hair, in the cold water of Castalia, mounted on it, to receive the divine effluvia. She wore a crown of laurel, and shook a sacred tree, which grew by. Sometimes she chewed the leaves; and the frenzy which followed may with probability be attributed to this usage, and the gentler or more violent symptoms to the quantity taken. In one instance the paroxysm was so terrible, that the priests and suppliants ran away, and left her alone to expire, it was believed of the god. Her part was unpleasant; but, if she declined acting, they dragged her by force to the tripod. The habit of her order was that of virgins. The rules enjoined temperance and chastity, and prohibited luxury in apparel. The season of enquiry was in the spring, during the month called *Busius*; after which Apollo was supposed to visit the altars of the Hyperboreans.

The city of Delphi arose in the form of a theatre; upon the winding declivity of Parnassus, whose fantastic tops overshadowed it, like a canopy, on the north, while two immense rocks rendered it inaccessible on the east and west, and the rugged and shapeless mount Cirphis defended it on the south. The foot of the

last-named mountain was washed by the rapid Plistus, which discharged itself into the sea at the distance of only a few leagues from the sacred city. This inaccessible and romantic situation, from which the place derived the name of Delphi (signifying, as explained in the glossaries, *solitary alone*), was rendered still more striking, by the innumerable echos which multiplied every sound, and increased the ignorant veneration of visitants for the god of the oracle. The artful ministers of Apollo gradually collected such objects in the groves and temple as were fitted to astonish the senses of the admiring multitude. The splendor of marble, the magic of painting, the invaluable statues of gold and silver, represented (to use the language of antiquity) not the resemblance of an earthly habitation, but rather expressed the image of Olympus, adorned and enlightened by the actual presence of the gods.

The protection and superintendence of this precious depository of riches and superstition belonged to the Amphictyons, as already noticed. But the inhabitants of Delphi, who, if we may use the expression, were the original proprietors of the oracle, always continued to direct the religious ceremonies, and to conduct the important business of prophecy. It was their province alone to determine at what time, and on what occasion, the Pythia should mount the sacred tripod, to receive the prophetic steams by which she communicated with Apollo. When overflowing with the heavenly inspiration, she uttered the confused words, or rather frantic sounds, irregularly suggested by the impulse of the god; the Delphians collected these sounds, reduced them into order, animated them with sense, and adorned them with harmony. The Pythia, appointed and dismissed at pleasure, was a mere instrument in the hands of those artful ministers, whose character became so venerable and sacred, that they were finally regarded, not merely as attendants and worshippers, but as the peculiar family of the god. Their number was considerable, and never exactly ascertained, since all the principal inhabitants of Delphi, claiming an immediate relation to Apollo, were intitled to officiate in the rites of his sanctuary; and even the inferior ranks belonging to that sacred city were continually employed in dances, festivals, processions, and in displaying all the gay pageantry of an airy and elegant superstition.

Delphi was conveniently situated for the conflux of votaries lying in the center of Greece, and, as was then imagined, of the universe. It was customary for those who consulted the oracle to make rich presents to the god: his servants and priests feasted on the numerous victims which were sacrificed to him; and the rich magnificence of his temple had become proverbial even in the age of Homer. In after times, Cræsus, the wealthiest of monarchs, was particularly munificent in his donations. This sacred repository of opulence was therefore often the object of plunder. Neoptolemus was slain, while sacrificing, on suspicion of a design of that kind. Xerxes divided his army at Panopeus, and proceeded with the main body through Bœotia into Attica, while a party keeping Parnassus on the right, advanced along Schiste to Delphi; but was taken with a panic when near Ilium, and fled. This monarch, it is related, was as well apprised of the contents of the

Delphi.

Delphi,
Delphinia.

temple, and the sumptuous offerings of Halyattes and Cræsus, as of the effects which he had left behind in his own palace. The divine board was seized by the Phocensians under Philomelus, and dissipated in a long war with the Amphictyons. The Gauls experienced a reception like that of the Persians, and manifested similar dismay and superstition. Sylla, wanting money to pay his army, sent to borrow from the holy treasury, and when his messenger would have frightened him, by reporting a prodigy, that the sound of a harp had been heard from within the sanctuary, replied, it was a sign that the god was happy to oblige him.

The trade of Apollo, after it had flourished for a long period, was affected by the mal-practices of some concerned in the partnership, who were convicted of bribery and corruption, and ruined the character of their principal. The temple in the time of Strabo was reduced to extreme poverty; but the offerings which remained were very numerous. Apollo was silent, except some efforts at intervals to regain his lost credit. Nero attempted to drive him, as it were by violence, from the cavern; killing men at the mouth, and polluting it with blood; but he lingered on, and would not entirely forsake it. Answers were reported as given by him afterwards, but not without suspicion of forgery. An oracle of Apollo at another place informed the consultants, that he should no more recover utterance at Delphi, but enjoined the continuance of the accustomed offerings.

The city of Delphi was free under the Romans. In the time of Pausanias, who has particularly described it, there still remained an invaluable treasure of the offerings within the court of the temple. The number, variety, and beauty of these were prodigious. The store appeared inexhaustible; and the robbery of Nero, who removed five hundred brazen images, was rather regretted than perceived. The holy treasuries, though empty, served as memorials of the piety and glory of the cities which erected them. The Athenian portico preserved the beaks of ships and the brazen shields; trophies won in the Peloponnesian war. And a multitude of curiosities remained untouched.

Constantine the Great, however, proved a more fatal enemy to Apollo and Delphi than either Sylla or Nero. He removed the sacred tripods to adorn the Hippodrome of his new city; where these, with the Apollo, the statues of the Heliconian muses, and the celebrated Pan, dedicated by the Greek cities after the war with the Medes, were extant when Sozomen wrote his history. Afterwards Julian sent Oribasius to restore the temple; but he was admonished by an oracle to represent to the emperor the deplorable condition of the place. 'Tell him the well-built court is fallen to the ground. Phoebus has not a cottage, nor the prophetic laurel, nor the speaking fountain (Cassotis); and even the beautiful water is extinct.' See DELPHOS.

DELPHINIA, in antiquity, feasts which the inhabitants of Egina celebrated in honour of Apollo, surnamed *Delphinus*, so called, as it is pretended, because he assumed the form of a dolphin to conduct Castalius and his colony from the isle of Crete to the *Sinus Grissæus Delphinium*, one of the courts of judicature of the Athenians; so called from the proximity of the place, where they held their assemblies, to the temple of Apollo Delphinus.

DELPHINIUM, DOLPHIN-FLOWER, OR LARK-SPUR; a genus of the trigynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 26th order, *Multifiliquæ*. There is no calyx; the petals are five; the nectarium bifid, and horned behind; the silique three or one. There are seven species; four are cultivated in gardens. Two of these are annual, and two perennial. They are herbaceous plants of upright growth, rising from 18 inches to four feet in height, garnished with finely divided leaves, and terminated by long spikes of pentapetalous flowers of blue, red, white, or violet colours. One species, the consolida, is found wild in several parts of Britain, and grows in corn-fields. According to Mr Withering, the expressed juice of the petals, with a little alum, makes a good blue ink. The seeds are acrid and poisonous. When cultivated, the blossoms often become double. Sheep and goats eat this plant; horses are not fond of it; cows and swine refuse it. The first mentioned species makes a very fine appearance in gardens, and is easily propagated by seeds; being so hardy, that it thrives in any soil or situation.

DELPHINUS, or DOLPHIN; a genus of fishes belonging to the order of Cete. There are three species:

i. The delphinus, or dolphin. Historians and philosophers seem to have contended who should invent most fables concerning this fish. It was consecrated to the gods, was celebrated in the earliest time for its fondness of the human race, was honoured with the title of the *sacred fish*, and distinguished by those of *boy-loving* and *philanthropist*. It gave rise to a long train of inventions, proofs of the credulity and ignorance of the times. Aristotle steers the clearest of all the ancients from these fables, and gives in general a faithful history of this animal; but the elder Pliny, Ælian, and others, seem to preserve no bounds in their belief of the tales related of this fish's attachment to mankind. Scarce an accident could happen at sea, but the dolphin offered himself to convey to shore the unfortunate. Arion the musician, when flung into the ocean by the pirates, is received and saved by this benevolent fish.

*Inde (fide majus) tergo Delphinea recurvo,
Se memorant onere supposuisse novo.
Ille sedens citharamque tenens, pretiumque vehendi
Cantat, et æquoreas carmine mulcet aquas.*

OVID. *Fasts*, lib. ii. 113.

But (past belief) a dolphin's arched back
Preserved Arion from his destin'd wrack;
Secure he sits, and with harmonious strains
Requites his bearer for his friendly pains.

We are at a loss to account for the origin of those fables, since it does not appear that the dolphin shows a greater attachment to mankind than the rest of the cetaceous tribe. We know that at present the appearance of this fish, and the porpoise, are far from being esteemed favourable omens by the seamen; for their boundings, springs, and frolics, in the water, are held to be sure signs of an approaching gale.

It is from their leaps out of that element, that they assume a temporary form that is not natural to them; but which the old painters and sculptors have almost always given them. A dolphin is scarce ever exhibited by the ancients in a straight shape, but almost al-

ways

Delphi-
nium,
Delphinus.

Delphinus. ways incurvated: such are those on the coin of Alexander the Great, which is preserved by Belon, as well as on several other pieces of antiquity. The poets describe them much in the same manner, and it is not improbable but that the one had borrowed from the other:

*Tumidumque pando transilit dorso mare
Tyrrhenus omni piscis exultat freto,
Agitatque gyros.* SENECA. Trag. Agam. 450.

Upon the swelling waves the dolphins show
Their bending backs; then, swiftly darting, go,
And in a thousand wreaths their bodies throw.

Plate
CLV.

The natural shape of the dolphin* is almost straight, the back being very slightly incurvated, and the body slender: the nose is long, narrow, and pointed, not much unlike the beak of some birds, for which reason the French call it *l'oye de mer*. It has in all 40 teeth; 21 in the upper jaw and 19 in the lower; a little above an inch long, conic at their upper end, sharp-pointed, bending a little in. They are placed at small distances from each other; so that when the mouth is shut, the teeth of both jaws lock into one another: the spout-hole is placed in the middle of the head; the tail is semilunar; the skin is smooth, the colour of the back and sides dusky, the belly whitish: it swims with great swiftness; and its prey is fish. It was formerly reckoned a great delicacy: Dr Caius says, that one which was taken in his time was thought a present worthy the Duke of Norfolk, who distributed part of it among his friends. It was roasted and dressed with porpessé sauce, made of crumbs of fine wheat bread, mixed with vinegar and sugar. This species of dolphin must not be confounded with that to which seamen give the name; the latter being quite another kind of fish, the *coryphæna hippuris* of Linnæus, and the *dorado* of the Portuguese.

2. The phocæna, or porpessé. This species is found in vast multitudes in all parts of the British seas; but in greatest numbers at the time when fish of passage appear, such as mackarel, herrings, and salmon, which they pursue up the bays with the same eagerness as a dog does a hare. In some places they almost darken the sea as they rise above water to take breath: but porpesses not only seek for prey near the surface, but often descend to the bottom in search of sand-eels and sea-worms, which they root out of the sand with their noses in the same manner as hogs do in the fields for their food. Their bodies are very thick towards the head, but grow slender towards the tail, forming the figure of a cone. The nose projects a little, is much shorter than that of the dolphin, and is furnished with very strong muscles, which enables it the readier to turn up the sand. In each jaw are 48 teeth, small, sharp-pointed, and a little moveable: like those of the dolphin, they are so placed as that the teeth of one jaw locks into those of the other when closed. The eyes are small; the spout-hole is on the top of the head; the tail semilunar. The colour of the porpessé is generally black, and the belly whitish; but they sometimes vary. In the river St Lawrence there is a white kind; and Dr Borlase, in his voyage to the Scilly isles, observed a small species of cetaceous fish, which he calls *thornbacks*, from their broad and sharp fin on the back. Some of these were brown, some quite white, others spotted: but whether they were only a variety

of this fish, or whether they were small grampuses, which are also spotted, we cannot determine. The porpessé is remarkable for the vast quantity of the fat or lard that surrounds the body, which yields a great quantity of excellent oil: from this lard, or from their rooting like swine, they are called in many places *sea-hogs*; the Germans call them *meerschwein*; the Swedes *marssuin*; and the English *porpessé*, from the Italian *porco pesce*.—This was once a royal dish, even so late as the reign of Henry VIII. and from its magnitude must have held a very respectable station at the table; for in a household book of that prince, extracts of which are published in the third volume of the *Archæologia*, it is ordered, that if a porpessé should be too big for a horse-load, allowance should be made to the purveyor. This fish continued in vogue even in the reign of Elizabeth: for Dr Caius, on mentioning a dolphin (that was taken at Shoreham, and brought to Thomas Duke of Norfolk, who divided and sent it as a present to his friends) says, that it eat best with porpessé sauce, which was made of vinegar, crumbs of fine bread, and sugar.

3. The orca, or grampus, is found from the length of 15 feet to that of 25. It is remarkably thick in proportion to its length, one of 18 feet being in the thickest place 10 feet diameter. With reason then did Pliny call this “an immense heap of flesh armed with dreadful teeth.” It is extremely voracious; and will not even spare the porpessé, a congenerous fish. It is said to be a great enemy to the whale, and that it will fasten on it like a dog on a bull, till the animal roars with pain. The nose is flat, and turns up at the end. There are 30 teeth in each jaw; those before are blunt, round, and slender; the farthest sharp and thick: between each is a space adapted to receive the teeth of the opposite jaw when the mouth is closed. The spout-hole is in the top of the neck. The colour of the back is black, but on each shoulder is a large white spot; the sides marbled with black and white: the belly of a snowy whiteness. These fishes sometimes appear on our coasts; but are found in much greater numbers off the North Cape in Norway, whence they are called the *North-Capers*.—These and all other whales are observed to swim against the wind; and to be much disturbed, and tumble about with unusual violence, at the approach of a storm.

4. The beluga, a species called by the Germans *wit-fisch*, and by the Russians *beluga*; both signifying “white fish:” but to this the last add *morjskaia*, or “of the sea,” by way of distinguishing it from a species of sturgeon so named. The head is short: nose blunt: spiracle small, of the form of a crescent: eyes very minute: mouth small: in each side of each jaw are nine teeth, short, and rather blunt; those of the upper jaw are bent and hollowed, fitted to receive the teeth of the lower jaw when the mouth is closed: pectoral fins nearly of an oval form: beneath the skin may be felt the bones of five fingers, which terminate at the edge of the fin in five very sensible projections. This brings it into the next of rank in the order of beings with the *Manati*. The tail is divided into two lobes, which lie horizontally, but do not fork, except a little at their base. The body is oblong, and rather slender, tapering from the back (which is a little elevated) to the tail. It is quite destitute of the dorsal fin. Its length is from 12 to 18 feet. It makes great use of its

Delphinus.

Delphinus,
Delphos.

its tail in swimming; for it bends that part under it, as a lobster does its tail, and works it with such force as to dart along with the rapidity of an arrow. It is common in all the Arctic seas; and forms an article of commerce, being taken on account of its blubber. They are numerous in the Gulph of St Lawrence, and go with the tide as high as Quebec. There are fisheries for them and the common porpessie in that river. A considerable quantity of oil is extracted; and of their skin is made a sort of Morocco leather, thin yet strong enough to resist a musket-ball. They are frequent in the Dwina and the Oby; and go in small families from five to ten, and advance pretty far up the rivers in pursuit of fish. They are usually caught in nets, but are sometimes harpooned. They bring only one young at a time, which is dusky; but grow white as they advance in age, the change first commencing on the belly. They are apt to follow boats, as if they were tamed; and appear extremely beautiful, by reason of their resplendent whiteness.

DELPHINUS, in astronomy, a constellation of the northern hemisphere.

DELPHOS, a town, or rather village, of Turkey in Asia, in the province of Libandia; occupying part of the site of the ancient Delphi. See DELPHI.

† Chander's
Travels in
Greece.

A late traveller † informs us, that some vestiges of temples are visible; and above them, in the mountain-side, are sepulchres, niches and horizontal cavities for the body, some covered with slabs. Farther on is a niche cut in the rock with a seat, intended, it seems, for the accommodation of travellers wearied with the rugged track and the long ascent. The monastery is on the site of the Gymnasium. Strong terrace walls and other traces of a large edifice remain. The village is at a distance. Castalia is on the right hand as you ascend to it, the water coming from on high and crossing the road; a steep precipice, above which the mountain still rises immensely, continuing on in that direction. The village consists of a few poor cottages of Albanians covering the site of the temple and oracle. Beneath it to the south is a church of St Elias, with areas, terrace walls, arches, and vestiges of the buildings once within the court. The concavity of the rock in this part gave to the site the resemblance of a theatre. Turning to the left hand, as it were toward the extremity of one of the wings, you come again to sepulchres hewn in the rock, and to a semicircular recess or niche with a seat as on the other side. Higher up than the village is the hollow of the Stadium, in which were some seats and scattered fragments.

Higher up, within the village, is a piece of ancient wall, concealed from view by a shade, which it supports. The stone is brown, rough, and ordinary, probably that of Parnassus. On the south side are many inscriptions, with wide gaps between the letters, which are negligently and faintly cut; all nearly of the same tenor, and very difficult to copy. They register the purchase of slaves who had entrusted the price of their freedom to the god; containing the contract between Apollo and their owners, witnessed by his priests and by some of the archons. This remnant seems to be part of the wall before Cassotis; as above it is still a fountain, which supplies the village with excellent water, it is likely from the ancient source.

The water of Castalia in the neighbourhood, from

which the Pythia, and the poets who versified her answers, were believed to derive a large share of their inspiration, descends through a cleft of Parnassus; the rock on each side high and steep, ending in two summits; of which one was called *Haympeia*, and had beneath it the sacred portion of Autonous, a local hero as distinguished as Phylacus. From this precipice the Delphians threw down the famous *Æsop*. By the stream, within the cleft, are seen small broken stairs leading to a cavity in which is water, and once perhaps up to the top. Grooves have been cut, and the marks of tools are visible on the rock; but the current, instead of supplying a fountain, now passes over its native bed, and hastens down a course deep-worn to join the *Plistus*. Close by, at the foot of the eastern precipice, is a basin with steps on the margin, once, it is likely, the bath used by the Pythia. Above, in the side of the mountain, is a petty church dedicated to St John, within which are excavations resembling niches, partly concealed from view by a tree.

DELTA, is a part of Lower Egypt, which takes up a considerable space of ground between the branches of the Nile and the Mediterranean Sea: the ancients called it the *Isle of Delta*, because it is in the shape of a triangle, like the Greek letter of that name. It is about 130 miles along the coast from Damietta to Alexandria, and 70 on the sides from the place where the Nile begins to divide itself. It is the most plentiful country in all Egypt, and it rains more there than in other parts, but the fertility is chiefly owing to the inundation of the river Nile. The principal towns on the coast are Damietta, Rosetta, and Alexandria; but, within land, Menoufia, and Maala or Elmala.

DELTOIDES, in anatomy. See ANATOMY, *Table of the Muscles*.

DELUGE, an inundation or overflowing of the earth, either wholly or in part, by water.

We have several deluges recorded in history; as that of Ogyges, which overflowed almost all Attica; and that of Deucalion, which drowned all Thessaly in Greece: but the most memorable was that called the *Universal Deluge*, or *Noah's Flood*, which overflowed and destroyed the whole earth; and from which only Noah, and those with him in the ark, escaped.

This flood makes one of the most considerable epochs in chronology. Its history is given by Moses, Gen. ch. vi. and vii. Its time is fixed, by the best chronologers, to the year from the creation 1656, answering to the year before Christ 2293. From this flood, the state of the world is divided into *diluvian* and *antediluvian*. See ANTEDELUVIANS.

Among the many testimonies of the truth of this part of the Mosaic history, we may account the general voice of mankind at all times, and in all parts of the world. The objections of the free-thinkers have indeed principally turned upon three points, viz. 1. The want of any direct history of that event by the profane writers of antiquity; 2. The apparent impossibility of accounting for the quantity of water necessary to overflow the whole earth to such a depth as it is said to have been: and, 3. There appearing no necessity for an universal deluge, as the same end might have been accomplished by a partial one.

I. The former of these objections has given rise to several very elaborate treatises, though all that has yet been

Delta
Deluge.

1
Era of the
deluge.

2
Objections
to the fact.

Deluge.

been done in this way has scarcely been able to silence the objectors. Mr Bryant, in his system of Mythology, has with great learning and considerable success endeavoured to show, that the deluge was one of the principal, if not the only foundation of the Gentile worship; that the first of their deities was Noah; that all nations of the world look up to him as their founder; and that he, his sons, and the first patriarchs, are alluded to in most if not all of the religious ceremonies, not only of the ancient but of the modern heathens. In short, according to this author, the deluge, so far from being forgot, or obscurely mentioned by the heathen world, is in reality conspicuous throughout every one of their acts of religious worship.

3
Bryant's account of the ancient heathens.

The Egyptian Osiris, according to him, was the same with Ham the son of Noah, tho' the name was sometimes bestowed on Noah himself. That this is the case, is evident, he thinks, from its being said that he was exposed in an ark, and afterwards restored to day; that he planted the vine, taught mankind agriculture, and inculcated upon them the maxims of religion and justice. Something of the same kind is related of Perseus. He is represented by some ancient historians as a great astronomer, and well versed in other sciences. After being conceived in a shower of gold, he was exposed in an ark upon the waters, and is said to have had a renewal of life.—The history of Myrina the amazon affords a kind of abridgment and mixture of the histories of Osiris and Perseus. Similar to these is the history of Hercules himself. But our author observes, that under titles of *Osiris*, *Perseus*, *Myrina*, &c. the ancients spoke of the exploits of a whole nation, who were no other than the Cushites or Cushites, the descendants of Cush the son of Ham and father of Nimrod. These people spread themselves into the most remote corners of the globe; and hence the heroes whom they represented are always set forth as conquering the whole world.—According to Diodorus Siculus, the Egyptian Osiris was the same with the Dionysus of the Greeks. He is said to have been twice born, and to have had two fathers and two mothers; to have been wonderfully preserved in an ark; to have travelled all over the earth; taught the use of the vine, to build, plant, &c. The Indians claim him as a native of their country, though some allow that he came from the west. Of Cronus and Astarte, it is said that they went over the whole earth, disposing of the countries as they pleased, and doing good wherever they came. The same is related of Ouranus, Themis, Apollo, &c. though all their exploits are said to have been the effects of conquest, and their benevolence enforced by the sword. In a similar manner he explains the histories of other heroes of antiquity; and having thus, in the characters and history of the most celebrated personages, found traces of the history of Noah and his family, our author proceeds to inquire into the memorials of the deluge itself, to be met with in the history or religious rites of the different nations of antiquity.

4
Testimonies of the deluge to be met with in heathen authors.

"We may reasonably suppose (says he), that the particulars of this extraordinary event would be gratefully commemorated by the patriarch himself, and transmitted to every branch of his family; that they were made the subject of domestic converse, where

the history was often renewed, and ever attended with a reverential awe and horror, especially in those who had been witnesses to the calamity, and had experienced the hand of Providence in their favour. In process of time, when there was a falling off from the truth, we might farther expect, that a person of so high a character as Noah, so particularly distinguished by the Deity, could not fail of being revered by his posterity; and when idolatry prevailed, that he would be one of the first among the sons of men to whom divine honours would be paid. Lastly, we might conclude, that these memorials would be interwoven in the mythology of the Gentile world; and that there would be continual illusions to these ancient occurrences in the rites and mysteries as they were practised by the nations of the earth. In conformity to these suppositions, I shall endeavour to show that these things did happen; that the history of the deluge was religiously preserved in the first ages; that every circumstance of it is to be met with among the historians and mythologists of different countries: and traces of it are to be found particularly in the sacred rites of Egypt and of Greece.

"It will appear from many circumstances in the more ancient writers, that the great patriarch was highly revered by his posterity. They looked up to him as a person highly favoured by heaven; and honoured him with many titles, each of which had a reference to some particular part of his history. They styled him *Prometheus*, *Deucalion*, *Atlas*, *Theuth*, *Zuth*, *Xuthus*, *Inachus*, *Osiris*. When there began to be a tendency towards idolatry, and the adoration of the sun was introduced by the posterity of Ham, the title of *Heliur*, among others, was conferred upon him. They called him also *Muv* and *Mav*, which is the moon. When colonies went abroad, many took to themselves the title of *Minyadæ* and *Minyæ* from him; just as others were denominated *Achæmenidæ*, *Auritæ*, *Heliadæ*, from the sun. People of the former name are to be found in Arabia and in other parts of the world. The natives at Orchomenos were styled *Minyæ*, as were some of the inhabitants of Thessaly. Noah was the original Zeus and Dios. He was the planter of the vine, and inventor of fermented liquors: whence he was denominated *Zeuth*, which signifies ferment, rendered *Zeus* by the Greeks. He was also called *Dionysos*, interpreted by the Latins *Bacchus*, but very improperly. Bacchus was Chus the grandson of Noah; as Ammon may in general be esteemed Ham, so much revered by the Egyptians.

"Among the people of the east, the true name of the patriarch was preserved; they called him *Noas*, *Naus*, and sometimes contracted *Nous*; and many places of sanctity, as well as rivers, were denominated from him. Anaxagoras of Clazomene had obtained some knowledge of him in Egypt. By him the patriarch was denominated *Noas* or *Nous*; and both he and his disciples were sensible that this was a foreign appellation; notwithstanding which, he has acted as if it had been a term of the Greek language. Eusebius informs us, that the disciples of Anaxagoras say, 'that *Nous* is, by interpretation, the deity *Dis* or *Dios*; and they likewise esteem *Nous* the same as *Prometheus*, because he was the renewer of mankind, and was said to have fashioned them, again,' after they had

Deluge.

5
Various titles by which Noah was distinguished.

Deluge.

had been in a manner extinct. After this, however, he gives a solution of the story, upon the supposition that Nous is the same with the Greek word *νοῦς* the mind: that 'the mind was *Prometheia*; and Prometheus was said to renew mankind, from new forming their minds, and leading them, by cultivation, from ignorance.'

"Suidas has preserved, from some ancient author, a curious memorial of this wonderful personage, whom he affects to distinguish from Deucalion, and styles *Nannacus*. According to him, this Nannacus was a person of great antiquity, and prior to the time of Deucalion. He is said to have been a king, who, foreseeing the approaching deluge, collected every body together, and led them to a temple, where he offered up his prayers for them, accompanied with many tears. There is likewise a proverbial expression about Nannacus applied to people of great antiquity.

"Stephanus gives great light to this history, and supplies many deficiencies. 'The tradition is (says he), that there was one formerly named *Annacus*, the extent of whose life was above 300 years. The people who were of his neighbourhood and acquaintance had inquired of an oracle how long he was to live; and there was an answer given, that when Annacus died, all mankind would be destroyed. The Phrygians, upon this account made great lamentations, from whence arose the proverb *το ἐπὶ Αἰννακῶν κλάυσειν*, the lamentation for *Annacus*, made use of for people or circumstances highly calamitous. When the flood of Deucalion came, all mankind were destroyed, according as the oracle had foretold. Afterwards, when the surface of the earth began to be again dry, Zeus ordered Prometheus and Minerva to make images of clay in the form of men: and, when they were finished, he called the winds, and made them breathe into each, and render them vital."

Inachus,
Deucalion,
and Prom-
etheus, the
same with
Noah.

From these histories Mr Bryant concludes as follows: "However the story may have been varied, the principal outlines plainly point out the person who is alluded to in these histories. It is, I think, manifest, that Annacus, and Nannacus, and even Inachus, relate to Noachus or Noah. And not only these, but the histories of Deucalion and Prometheus have a like reference to the patriarch; in the 600th year, and not the 300th, of whose life the waters prevailed upon the earth. He was the father of mankind, who were renewed in him. Hence he is represented by another author, under the character of Prometheus, as a great artist, by whom men were formed anew, and were instructed in all that was good.

"Noah was the original Cronus and Zeus; though the latter is a title conferred sometimes upon his son Ham. There is a very particular expression recorded by Clemens of Alexandria, and attributed to Pythagoras, who is said to have called the sea the *tear of Cronus*; and there was a farther tradition concerning this person, that he drank, or swallowed up all his children. The tears of Isis are represented as very mysterious. They are said to have flowed whenever the Nile began to rise, and to flood the country. The overflowing of that river was the great source of affluence to the people, and they looked upon it as their

chief blessing; yet it was ever attended with mystical tears and lamentations. This was particularly observed at Coptos, where the principal deity was Isis. An ancient writer imagines that the tears and lamentations of the people were to implore an inundation; and the tears of Isis were supposed to make the river swell. But all this was certainly said and done in memorial of a former flood, of which they made the overflowing of the Nile a type.

"As the patriarch was by some represented as a king called *Naachus* and *Nauchus*; so by others he was styled *Inachus*, and supposed to have reigned at Argos. Hence Inachus was made a king of Greece; and Phoroneus and Apis brought in succession after him. But Inachus was not a name of Grecian original: it is mentioned by Eusebius, in his account of the first ages, that there reigned in Egypt Telegonus, a prince of foreign extraction, who was the son of Ones the shepherd, and the seventh in descent from Inachus. And in the same author we read, that a colony went forth from that country into Syria, where they founded the ancient city of Antioch: and that they were conducted by Calus and Belus, who were sons of Inachus. By Inachus is certainly meant Noah: and the history relates to some of the more early descendants of the patriarch. His name has been rendered very unlike itself, by having been lengthened with terminations, and likewise fashioned according to the idiom of different languages. But the circumstances of the history are so precise and particular, that we cannot miss of the truth.

"He seems in the east to have been called *Noar*, *Noasis*, *Nufus*, and *Nus*; and by the Greeks his name was compounded *Dionufus*. The Amonians, wherever they came, founded cities to his honour: hence places called *Nusa* will often occur; and indeed a great many of them are mentioned by ancient authors. These, though widely distant, being situated in countries far removed, yet retained the same original histories; and were generally famous for the plantation of the vine. Misled by this similarity of traditions, people in after times imagined that Dionufus must necessarily have been where his history occurred: and as it was the turn of the Greeks to place every thing to the account of conquest, they made him a great conqueror, who went over the face of the whole earth, and taught mankind the plantation of the vine. We are informed, that Dionufus went with an army over the face of the whole earth, and taught mankind, as he passed along, the method of planting the vine, and how to press out the juice, and receive it in proper vessels. 'Tho' the patriarch is represented under various titles, and even these not always uniformly appropriated; yet there will continually occur such peculiar circumstances of his history as will plainly point out the person referred to. The person preserved is always mentioned as preserved in an ark. He is described as being in a state of darkness, which is represented allegorically as a state of death. He then obtains a new life, which is called a second birth; and is said to have his youth renewed. He is, on this account, looked upon as the first-born of mankind; and both his antediluvian and postdiluvian states are commemorated, and sometimes the intermediate state is also spoken of. Diodorus calls him *Deucalion*; but describes the deluge as

Deluge.

Deluge.

in a manner universal. 'In the deluge which happened in the time of Deucalion, almost all flesh died.' Apollodorus having mentioned Deucalion *ἐν λαρυάκι*, *confined to the ark*, takes notice, upon his quitting it, of his offering up an immediate sacrifice to the God who delivered him. As he was the father of all mankind, the ancients have made him a person of very extensive rule; and supposed him to have been a king. Sometimes he is described as a monarch of the whole earth; at other times he is reduced to a petty king of Thessaly. He is mentioned by Helladius in this latter capacity; who speaks of the deluge in his time, and of his building altars to the gods. Apollonius Rhodius supposes him to have been a native of Greece, according to the common notion: but notwithstanding his prejudices, he gives so particular a character of him, that the true history cannot be mistaken. He makes him indeed the son of Prometheus, the son of Japetus; but in these ancient mythological accounts all genealogy must be entirely disregarded. Though this character be not precisely true, yet we may learn that the person represented was the first of men, through whom religious rites were renewed, cities built, and civil polity established in the world: none of which circumstances are applicable to any king of Greece. We are assured by Philo, that Deucalion was Noah; and the Chaldeans likewise mentioned him by the name of Xisuthrus, as we are informed by Cedrenus.

7
Deucalion
proved not
to have be-
longed to
Thessaly.

"That Deucalion was unduly adjudged by the people of Thessaly to their country solely, may be proved from his name occurring in different parts of the world, and always accompanied with some history of the deluge. The natives of Syria laid the same claim to him. He was supposed to have founded the temple at Hierapolis, where was a chasm through which the waters after the deluge were said to have retreated. He was likewise reported to have built the temple of Jupiter at Athens; where there was a cavity of the same nature, and a like tradition, that the waters of the flood passed off through this aperture. However groundless the notions may be of the waters having retreated through these passages, yet they show what impressions of this event were retained by the Amonians, who introduced some history of it wherever they came. As different nations succeeded one another in these parts, and time produced a mixture of generations, they varied the history, and modelled it according to their notions and traditions; yet the ground-work was always true, and the event for a long time universally commemorated. Josephus, who seems to have been a person of extensive knowledge, and versed in the histories of nations, says that this great occurrence was to be met with in the writings of all persons who treated of the first ages. He mentions Berofus of Chaldea, Hieronymus of Egypt, who wrote concerning the antiquities of Phenicia; also Alnaseas, Abydenus, Melon, and Nicolaus Damascenus, as writers by whom it was recorded; and adds, that it was taken notice of by many others.

8
Accounts of
the flood
among the
eastern na-
tions.

"Among the eastern nations, the traces of this event are more vivid and determinate than those of Greece, and more conformable to the accounts of Moses. Eusebius has preserved a most valuable extract to this purpose from Abydenus; which was taken from

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the archives of the Medes and Babylonians. This writer speaks of Noah, whom he names Seisithrus, as a king: and says, that the flood began upon the 15th day of the month Desius: that during the prevalence of the waters, Seisithrus sent out birds, that he might judge if the flood had returned: but that the birds, not finding any resting place, returned to him again. This was repeated three times; when the birds were found to return with their feet stained with soil; by which he knew the flood was abated. Upon this he quitted the ark, and was never more seen of men, being taken away by the gods from the earth. Abydenus concludes with a particular, in which the eastern writers are unanimous; that the place of descent from the ark was in Armenia, and speaks of its remains being preserved for a long time. Plutarch mentions the Noachic dove, and its being sent out of the ark. But the most particular history of the deluge, and the nearest of any to the account given by Moses, is to be found in Lucian. He was a native of Samosata, a city of Comagene, upon the Euphrates, a part of the world where memorials of the deluge were particularly preserved, and where a reference to that history was continually kept up in the rites and worship of the country. His knowledge therefore was obtained from the Asiatic nations among whom he was born, and not from his kinsmen the Helladians, who were far inferior in the knowledge of ancient times. He describes Noah under the name of Deucalion; and says, 'that the present race of mankind are different from those who first existed: for those of the antediluvian world were all destroyed. The present world is peopled from the sons of Deucalion; having increased to so great a number from one person. In respect to the former brood, they were men of violence, and lawless in their dealings. They regarded not oaths, nor observed the rights of hospitality, nor showed mercy to those who sued for it. On this account they were doomed to destruction: and for this purpose there was a mighty eruption of waters from the earth, attended with heavy showers from above; so that the rivers swelled, and the sea overflowed, till the whole earth was covered with a flood, and all flesh drowned. Deucalion alone was preserved to re-people the world. This mercy was shown to him on account of his piety and justice. His preservation was effected in this manner: He put all his family, both his sons and their wives, into a vast ark which he had provided, and he went into it himself. At the same time animals of every species, boars, horses, lions, serpents, whatever lived upon the face of the earth followed him by pairs: all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout, by the immediate influence of the Deity. Thus were they waisted with him as long as the flood endured.' After this he proceeds to mention, that upon the disappearing of the waters, Deucalion went forth from the ark, and raised an altar to God; but he transposes the scene to Hierapolis in Syria, where the natives pretended, as has been already mentioned, to have very particular memorials of the deluge.

"Most of the authors who have transmitted to us these accounts, at the same time inform us, that the remains of the ark were to be seen in their days on one of the eastern nations. Remains of the ark said to have been of long visible.

4 Z.

9

Deluge.

of the mountains of Armenia. Abydenus particularly says, in confirmation of this opinion, that the people of the country used to get small pieces of the wood, which they carried about by way of amulet. And Berofus mentions, that they scraped off the asphaltus with which it was covered, and used it as a charm. Some of the fathers seem to insist on the certainty of the ark being still remaining in their time. Theophilus says expressly, that the remains were to be seen upon the mountains of Aram, or Armenia. And Chrysostom appeals to it as to a thing well known. 'Do not (says he) those mountains of Armenia bear witness to the truth? those mountains where the ark first rested? And are not the remains of it preserved there even unto this day?'

10
Boats or
ships carried
in procession
by the
Amonians
and Egyptians.

"There was a custom among the priests of Amon, of carrying a boat in procession at particular seasons, in which was an oracular shrine held in great veneration. They were said to have been 80 in number, and to have carried the sacred vessel about just as they were directed by the impulse of the Deity. This custom was likewise in use among the Egyptians, and bishop Pocock has preserved three specimens of ancient sculpture, wherein this ceremony is displayed. They are of wonderful antiquity, and were found by him in Upper Egypt.

"Part of the ceremony in most of the ancient mysteries consisted in carrying about a ship or boat; which custom, upon due examination, will be found to relate to nothing else but Noah and the deluge. The ship of Isis is well known, and the festivity among the Egyptians whenever it was carried in public. The name of this, and of all the navicular shrines, was *Baris*; which is remarkable, for it was the very name of the mountain, according to Nicolaus Damascenus, on which the ark of Noah rested, the same as Ararat in Armenia. He mentions, that there is a large mountain in Armenia, which stands above the country of the Minyæ, called *Baris*; to this it was said that many people betook themselves in the time of the deluge, and were saved; and there is a tradition of one person in particular floating in an ark, and arriving at the summit of the mountain. We may be assured then, that the ship of Isis was a sacred emblem; in honour of which there was among the Egyptians an annual festival. It was in after times admitted among the Romans, and set down in their kalendar for the month of March. The former, in their description of the primary deities, have continually some reference to a ship or float. Hence we frequently read of *Θηοὶ ναυτιλάοντες* (sailing gods). They oftentimes, says Porphyry, describe the sun in the character of a man sailing upon a float. And Plutarch observes to the same purpose, that they did not represent the sun and the moon in chariots, but *wafted about upon floating machines*. In doing which they did not refer to the luminaries, but to a person represented under those titles. The sun, or Orus, is likewise described by Jamblichus as sitting upon the lotus, and sailing in a vessel.

11
Wonderful
ship of Sesostris
explained.

"It is said of Sesostris, that he constructed a ship which was 280 cubits in length. It was of cedar, plated without with gold, and inlaid with silver; and it was, when finished, dedicated to Osiris at Thebes. It is not credible that there should have been a ship of this size, especially in an inland district, the most re-

mote of any in Egypt. It was certainly a temple and a shrine. The former was framed upon this large scale; and it was the latter on which the gold and silver were so lavishly expended. There is a remarkable circumstance relating to the Argonautic expedition; that the dragon slain by Jason was of the size of a trireme; by which must be meant, that it was of the shape of a ship in general, for there were no triremes at the time alluded to. And I have moreover shown, that all these dragons, as they have been represented by the poets, were in reality temples, *Dracontia*; where, among other rites, the worship of the serpent was instituted. There is therefore reason to think, that this temple, as well as that of Sesostris, was fashioned, in respect to its superficial contents, after the model of a ship; and as to the latter, it was probably intended, in its outlines, to be the exact representation of the ark, in commemoration of which it was certainly built. It was a temple sacred to Osiris at Theba; or, to say the truth, it was itself called *Theba*; and both the city, said to be one of the most ancient in Egypt, as well as the province, were undoubtedly denominated from it. Now *Theba* was the name of the ark. It is the very word made use of by the sacred writer; so that we may, I think, be assured of the prototype after which this temple was fashioned. It is said indeed to have been only 280 cubits in length; whereas the ark of Noah was 300. But this is a variation of only one-fifteenth in the whole: and as the ancient cubit was not in all countries the same, we may suppose that this disparity arose rather from the manner of measuring than from any real difference in the extent of the building. It was an idolatrous temple, said to have been built by Sesostris in honour of Osiris. I have been repeatedly obliged to take notice of the ignorance of the Greeks in respect to ancient titles, and have shown their misapplication of terms in many instances; especially in their supposing temples to have been erected by persons to whom they were in reality sacred. Sesostris was Osiris; the same as Dionusius, Menes, and Noah. He is called *Seisithrus* by Abydenus; *Xixouthros* by Berofus and Apollodorus; and is represented by them as a prince in whose time the deluge happened. He was called *Zuth*, *Xuth*, and *Zeus*; and had certainly divine honours paid to him.

"Pausanias gives a remarkable account of a temple of Hercules at Eruthra in Ionia; which he mentions as of the highest antiquity, and very like those of Egypt. The deity was represented upon a float, and was supposed to have come thither in this manner from Phenicia. Aristides mentions, that at Smyrna, upon the feast called *Dionysia*, a ship used to be carried in procession. The same custom prevailed among the Athenians at the Panathenæa; when what was termed the sacred ship was borne with great reverence through the city to the temple of Demeter at Eleusis. At Phalerus, near Athens, there were honours paid to an unknown hero, who was represented in the stern of a ship. At Olympia, the most sacred place in Greece, was a representation of the like nature. It was a building like the fore-part of a ship, which stood facing the end of the hippodromus; and towards the middle of it was an altar, upon which, at the renewal of each olympiad, certain rites were performed.

"I think it is pretty plain that all these emblematical

Deluge.

12
Other emblematical
representations
explained.

Deluge.

tical representations, of which I have given so many instances, related to the history of the deluge, and the conservation of one family in the ark. This history was pretty recent when these works were executed in Egypt, and when the rites were first established; and there is reason to think, that in early times most shrines of the Mizraim were formed under the resemblance of a ship, in memory of this great event. Nay, farther, both ships and temples received their names from thence; being styled by the Greeks, who borrowed largely from Egypt, *Naus* and *Nao*, and mariners *Nautai*, *Nautæ*, in reference to the patriarch, who was variously styled *Noas*, *Nous* and *Noah*.

"However the Greeks may, in their mysteries, have sometimes introduced a ship as a symbol, yet in their references to the deluge itself, and to the persons preserved, they always speak of an ark. And though they were apt to mention the same person under various titles, and by these means different people seem to be made principals in the same history; yet they were so far uniform in their account of this particular event, that they made each of them to be exposed in an ark. Thus it is said of Deucalion, Perseus, and Dionusus, that they were exposed upon the waters in a machine of this fabric. Adonis was hid in an ark by Venus, and was supposed to have been in a state of death for a year. Theocritus introduces a pastoral personage named *Comates*, who was exposed in an ark for the same term, and wonderfully preserved. Of Osiris being exposed in an ark, we have a very remarkable account in Plutarch; who mentions, that it was on account of *Typhon*, and that it happened on the 17th of the month Athyr, when the sun was in Scorpio. This, in my judgment, was the precise time when Noah entered the ark, and when the flood came, which, in the Egyptian mythology, was called *Typhon*.

13
Explanation
of the word
Typhon.

"*Typhon* is one of those whose character has been greatly confounded. This has arisen from two different personages being included under one name, who undoubtedly were distinguished in the language of Egypt. *Typhon* was a compound of *Tuph* or *Tupha-On*; and signified an high altar of the Deity. There were several such in Egypt, upon which they offered human sacrifices; and the cities which had these altars were styled *Typhonian*. But there was another *Typhon*, who was very different from the former, however by mistake blended with that character. By this was signified a mighty whirlwind and inundation: and it oftentimes denoted the ocean; and particularly the ocean in a ferment. For, as Plutarch observes, by *Typhon* was understood any thing violent and unruly. It was a derivative from *Tuph*, like the former name; which *Tuph* seems here to have been the same as the *Suph* of the Hebrews. By this they denoted a whirlwind; but among the Egyptians it was taken in a greater latitude, and signified any thing boisterous, particularly the sea. Plutarch speaks of it as denoting the sea; and says likewise, that the salt of the sea was called the foam of *Typhon*. It signified also a whirlwind, as we learn from Euripides, who expresses

it *Tuphos*; and the like is to be found in Hesychius, who calls it a violent wind.

"The history of *Typhon* was taken from hieroglyphical descriptions. In these the dove, *oinas*, was represented as hovering over the *mundane* egg, which was exposed to the fury of *Typhon*: For an egg, containing in it the elements of life, was thought no improper emblem of the ark, in which were preserved the rudiments of the future world. Hence in the Dionusiaca, and in other mysteries, one part of the nocturnal ceremony consisted in the consecration of an egg. By this, we are informed by Porphyry, was signified the world. This world was Noah and his family; even all mankind, inclosed and preserved in the ark.

"In respect to *Typhon*, it must be confessed that the history given of him is attended with some obscurity. The Grecians have comprehended several characters under one term, which the Egyptians undoubtedly distinguished. The term was used for a title as well as a name; and several of those personages which had a relation to the deluge, were styled *Typhonian* or *Diluvian*. All these the Grecians have included under one and the same name, *Typhon*. The real deity by whom the deluge was brought upon the earth had the appellation of *Typhonian*, by which was meant *Diluvii Deus* (A). It is well known that the ark was constructed by a divine commission: in which, when it was completed, God inclosed the patriarch and his family. Hence it is said, that *Typhon* made an ark of curious workmanship, that he might dispose of the body of Osiris. Into this Osiris entered, and was shut up by *Typhon*. All this relates to the *Typhonian* deity who inclosed Noah, together with his family, within the limits of an ark. The patriarch also, who was thus interested in the event, had the title of *Typhonian*. I have shown that the ark by the mythologists was spoken of as the mother of mankind. The stay in the ark was looked upon as a state of death and of regeneration. The passage to life was through the door of the ark, which was formed in its side. Through this the patriarch made his descent; and at this point was the commencement of time. This history is obscurely alluded to in the account of *Typhon*; of whom it is said, that without any regard to time or place, he forced a passage and burst into light obliquely through the side of his mother. This return to light was described as a revival from the grave; and Plutarch accordingly mentions the return of Osiris from *Hades*, after he had been for a long season inclosed in an ark and in a state of death. This renewal of life was by the Egyptians esteemed a second state of childhood. They accordingly, in their hieroglyphics, described him as a boy, whom they placed upon the lotos or water-lily, and called him *Orus*. He was the supposed son of *Isis*; but it has been shown that *Isis*, *Rhea*, *Atargatis*, were all emblems of the ark, that *receptacle* which was styled the mother of mankind. *Orus* is represented as undergoing from the Titans all that Osiris suffered from *Typhon*; and the history at bottom is the same. Hence it is said

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of

(A) "Plutarch owns that the Egyptians in some instances esteemed *Typhon* to be no other than *Helios* the chief deity; and they were in the right, though he will not allow it."

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of Isis, that she had the power of making people immortal; and that when she found her son Orus, in the midst of the waters, dead through the malice of the Titans, she not only gave him a renewal of life, but also conferred upon him immortality."

In this manner does our author decypher almost all the ancient fables of which no satisfactory solution was ever given before. He shows that the primitive gods of Egypt, who were in number eight, were no other than the eight persons saved in the ark; that almost all the heathen deities had one way or other a reference to Noah. He shows that he was characterised under the titles of Janus, Nereus, Proteus, Oannes, Dagon, &c. &c. and in short, that the deluge, so far from being unknown to the heathens, or forgot by them, was in a manner the basis of the whole of their worship. He traces the history of the raven and dove sent forth by Noah in the customs of various nations, not only in the east but the west also. Of the numberless testimonies of the truth of this part of sacred history to be met with among the western nations, however, we shall select one more, which is an ancient coin usually known by the name of the *Apamean medal*. "The learned Falconerius (says Mr Bryant) has a curious dissertation upon a coin of Philip the Elder, which was struck at Apamea (B), and contained on its reverse an epitome of this history. The reverse of most Asiatic coins relate to the religion and mythology of the places where they were struck. On the reverse of this coin is delineated a kind of square machine floating upon the water. Through an opening in it are seen two persons, a man and a woman, as low as the breast; and upon the head of the woman is a veil. Over this ark is a triangular kind of pediment, on which there sits a dove; and below it another, which seems to flutter its wings, and hold in its mouth a small branch of a tree. Before the machine is a man following a woman, who by their attitude seem to have just quitted it, and to have got upon dry land. Upon the ark itself, underneath the persons there inclosed, is to be read in distinct characters, ΝΩΕ. The learned editor of this account says, that it had fallen to his lot to meet with three of these coins. They were of brass, and of the medallion size. One of them he mentions to have seen in the collection of the Duke of Tuscany; the second in that of the Cardinal Ottoboni; and the third was the property of Augustino Chigi, nephew to Pope Alexander VII."

14
Account of
the Apamean medal.

15
Accounts
of the flood
to be met
with in
China and
Japan.

Not content with these testimonies, however, which are to be met with in the western regions, or at least in those not very far to the eastward, our author shows that "the same mythology (of the Egyptians), and the same hieroglyphics, were carried as far as China and Japan; where they are to be found at this day. The Indians have a person whom they call Buto or Budo. This is the same as Boutus of Egypt, Battus of Cyrene, and Bæotus of Greece. The account given of him is similar to that of Typhon; for it is said that he did not come to life in the usual way, but made himself a passage through the side of his mother; which mother is represented as a virgin. This history,

though now current among the Indians, is of great antiquity, as we may learn from the account given of this personage by Clemens Alexandrinus. 'There is a cast of Indians (says he) who are disciples of Boutas. This person, on account of his extraordinary sanctity, they look up to as a god.' The name of Boutas, Battus, and Bæotus, though apparently conferred upon the patriarch, yet originally related to the machine in which he was preserved. Of this some traces may be found among the Greeks. One of the Amonian names for the ark were Aren and Arene; and Bæotus is said by Diodorus Siculus to have been the son of Neptune and Arne, which is a contraction of *arene* the ark. The chief city, Boutus in Egypt, where was the floating temple, signified properly the city of the float or ark. The Bæotians, who in the Dionysiaca so particularly commemorated the ark, were supposed to be descended from an imaginary personage, *Bæotus*; and from him likewise their country was thought to have received its name. But Bæotus was merely a variation from Boutus, and Butus, the ark; which in ancient times was indifferently styled Theba, Argus, Aren, Butus, and Bæotus. The term Cibotus is a compound of the same purport, and signifies both the temple of the ark and also a place for shipping.

"All the mysteries of the Gentile world seem to have been memorials of the deluge, and of the event which immediately succeeded. They consisted for the most part of a melancholy process; and were celebrated by night in commemoration of the state of darkness in which the patriarch and his family had been involved. The first thing at those awful meetings was to offer an oath of secrecy to all who were to be initiated: after which they proceeded to the ceremonies. These began with a description of chaos: by which was signified some memorial of the deluge. Chaos was certainly the same as *καὸς*, the great abyss. Who, says Epiphanius, is so ignorant as not to know, that Chaos and Cuthos, the abyss, are of the same purport?"

"The names of the deities in Japan and China, and the form of them, as well as the mythology with which they are attended, point out the country from whence they originally came. In China the deity upon the lotos in the midst of waters, has been long a favourite emblem, and was imported from the west. The insigne of the dragon was from the same quarter. The Cuthites worshipped Cham, the sun; whose name they variously compounded. In China most things which have any reference to splendor and magnificence, seem to be denominated from the same object. Cham is said, in the language of that country, to signify any thing *supreme*. Cum is a fine building or palace, similar to Coma of the Amonians. Cum is a lord or master; Cham a sceptre. Lastly, by Cham is signified a priest, analogous to the Chamanim and Chamenim of Cutha and Babylonia. The country itself is by the Tartars called *Ham*. The cities Cham-ju, Campion, Compition, Cundun, Chamul, and many others of the same form, are manifestly compounded of the sacred term Cham. Cambalu, the name of the ancient metropolis,

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16
Explanation
of the word
Chaos.

(B) Our author had before shown that the ancient name of Apamea was *Cibotus*, one of the names of the ark.

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tropolis, is the city of Cham-bal; and Milton styles it very properly *Cambaul, seat of Cathaian Chan*. By this is meant the chief city of the Cuthean monarch; for Chan is a derivative of Cahen, a prince. It seems sometimes in China and Japan to have been expressed Quan and Quano.

"Two temples are taken notice of by Hamilton, near Syrian in Pegu, which he represents as so like in structure, that they seemed to be built on the same model. One of these was called Kiakiack, or the *God of Gods temple*. The other is called *the temple of Dagon*; and the doors and windows of it are perpetually shut, so that none can enter but the priests. They will not tell of what shape the idol is, but only say that it is not of human form. The former deity, Kiakiack, is represented as asleep, of a human shape, and 60 feet long; and when he awakes, the world is to be destroyed. As soon as Kiakiack has dissolved the frame and being of this world, Dagon will gather up the fragments, and make a new one. I make no doubt but the true name of the temple was *Iach-Iach*, and dedicated to the same god as the Jachusi in Japan. Mr Wise takes notice of the Grecian exclamation to Dionusus, when the terms, *Iacche, O Iacche*, were repeated: and he supposes, with great probability, that the Peguan name had a reference to the same deity. It is certain, that the worship of Dionusus prevailed very early among the nations in the east. The Indians used to maintain, that his rites first began among them. Professor Bayer has shown, that traces of his worship are still to be observed among the Tamuli of Tranquebar. "They have a tradition (says he), that there was once a gigantic person named *Maidashuren*, who was born of Nifadabura near the mountain Meru. He had the horns of a bull, and drank wine, and made war upon the gods. He was attended by eight *Pudam*, who were gigantic and mischievous demons, of the family of those Indian shepherds called *Kobaler*." In this account we have a manifest reference to the history of Dionusus, as well as that of the Dionusians, by whom his rites were introduced. And we may perceive that it bears a great resemblance to the accounts transmitted by the Grecians. What are these *Kobaler*, who were descended from the shepherds, but the same as the *Cobali* of Greece, the uniform attendants upon Dionusus? a set of priests whose cruelty and chicanery rendered them infamous. "The *Cobali* (says an ancient author) were a set of cruel demons, who followed in the retinue of Dionusus. It is a term made use of for knaves and cheats."

"As the deity, in the second temple of Syrian, to which strangers were not admitted, was not of a human form, and was called *Dagon*, we may easily conceive the hidden character under which he was described. We may conclude, that it was no other than that mixed figure of a man and a fish, under which he was of old worshipped both in Palestine and Syria. He is expressed under this symbolical representation in many parts of India; and, by the Bramins is called *Wishnou* or *Vishnou*. Dagon and Vishnou have a like reference. They equally represent the man of the sea called by Berosus *Oannes*; whose history has been reversed by the Indians. They suppose that he will restore the world, when it shall be destroyed by the chief God. But by Dagon is signified the very person thro'

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whom the earth has been already restored when it was in a state of ruin, and by whom mankind was renewed. Dagon and Noah, I have shown to be the same. Vishnou is represented, like Dagon, under the mixed figure of a man and a fish, or rather of a man, a princely figure proceeding from a fish. The name of this district, near which the temples above stand, we find to be called *Syrian*; just as was named the region where stood the temples of Atargatus and Dagon, *Syrus*, *Syria*, and *Syrian*, are all of the same purport, and signify *Coelestis* and *Solaris*, from *Schor*, the sun."

Our author next proceeds to describe some of the Indian temples or pagodas; particularly those of Salsette, Eliphanta, and another called *Elora*, near Aurunghabad in the province of Balagate, which was visited by Thevenot. The traveller relates, that "upon making diligent inquiry among the natives about the origin of these wonderful buildings, the constant tradition was, that all these pagodas, great and small, with all their works and ornaments, were made by giants; but in what age they could not tell."

"Many of these ancient structures (continues Mr Bryant) have been attributed to *Ramscander*, or Alexander the Great; but there is nothing among these stately edifices that in the least favours of Grecian workmanship; nor had that monarch, nor any of the princes after him, opportunity to perform works of this nature. We have not the least reason to think that they ever possessed the country; for they were called off from their attention this way by feuds and engagements nearer home. There is no tradition of this country having been ever conquered except by the fabulous armies of Hercules and Dionusus. What has led people to think that these works were the operation of Alexander, is the similitude of the name *Ramtxander*. To this person they have sometimes been attributed; but *Ramtxander* was a deity, the supposed son of Bal; and he is introduced among the personages who were concerned in the incarnations of Vishnou.

"The temple of Elora, and all the pagodas of which I have made mention, must be of great antiquity, as the natives cannot reach their era. They were undoubtedly the work of the Indo-Cuthites, who came so early into these parts. And that these structures were formed by them, will appear from many circumstances; but especially from works of the same magnificence which were performed by them in other places. For scarce any people could have effected such great works, but a branch of that family which erected the tower in Babylonia, the walls of Balbec, and the pyramids of Egypt."

Having then described a number of East Indian idols of surprising magnitude, "the Babylonians and Egyptians (says he), and all of the same great family, used to take a pleasure in forming gigantic figures, and exhibiting other representations equally stupendous. Such were the colossal statues at Thebes, and the sphinx in the plains of Coume. The statue erected by Nebuchadnezzar in the plains of Dura, was in height threescore Babylonish cubits. It was probably raised in honour of *Cham*, the sun; and perhaps it was also dedicated to the head of the Chaldaic family; who was deified, and revered under that title. Marcellinus takes notice of a statue of Apollo named *Gomeus*; which, in the time of the emperor Verus, was brought

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brought from Seleucia to Rome. This related to the same deity as the preceding. We may also infer, that the temple at Kamju was erected to Cham the sun, whom the people worshipped under the name of *Samo-nifu*."

It is remarkable, that in Japan the priests and nobility have the title of *Cami*. The emperor Quebacondono, in a letter to the Portuguese viceroy, 1585, tells him that Japan is the kingdom of Chamis; whom, says he, we hold to be the same as *Scin*, the origin of all things. By *Scin* is probably meant *San*, the sun; who was the same as Cham, rendered here *Chamis*. The laws of the country are spoken of as the laws of Chamis; and we are told by Kämpfer, that all the gods were styled either *Sin* or *Cami*. The founder of the empire is said to have been *Tensio Dai Sin*, or "Tensio the god of light." Near his temple was a cavern religiously visited, upon account of his having been once hid when no sun nor stars appeared. He was esteemed the fountain of day, and his temple was called *the temple of Naiku*. Near this cavern was another temple, in which the canusi or priests showed an image of the deity sitting upon a cow. It was called *Dainits No Ray*, "the great representation of the sun." One of their principal gods is *Jakusi*, similar to the Iacchus of the West. Kämpfer says, that he is the Apollo of the Japanese, and they describe him as the Egyptians did Orus. His temple stands in a town called *Minnoki*: and *Jakusi* is here represented upon a gilt tarate flower; which is said to be the *nymphaea palustris maxima*, or *faba Aegyptiaca* of Prosper Alpinus. One half of a large scallop shell is like a canopy placed over him; and his head is surrounded with a crown of rays. They have also an idol named *Menippe*, much revered in different parts. Both these, continues our author, relate to the same person, viz. Noah. Kämpfer, an author of great credit, saw the temple of Dabys, which he truly renders *Daibod*, at Jedo in Japan. By *Dai-bod* was meant the god Budha, whose religion was styled the *Budso*, and which prevailed greatly upon the Indus and Ganges. Kämpfer, from whom Mr Bryant takes this account, says, that the people of Siam represent him under the form of a Moor, in a sitting posture, and of a prodigious size. His skin is black, and his hair curled (probably woolly), and the images about him are of the same complexion. "This god was supposed (says Mr Bryant) to have neither father nor mother. By *Budha* we are certainly to understand the idolatrous symbol called by some nations *Buldo*; the same as *Argus* and *Theba* (names for the ark). In the mythology concerning it, we may see a reference both to the machine itself and to the person preserved in it. In consequence of which we find his person also styled *Bod*, *Budha*, and *Buddo*; and in the West *Butus*, *Battus*, and *Baotus*. He was said by the Indians not to have been born in the ordinary way, but to have come to light indirectly through the side of his mother. By Clemens of Alexandria he is called *Bouta*: and in the history of this person, however varied, we may perceive a relation to the arkite deity of the sea, called *Poseidon* or Neptune; also to Arculus and Dionusus, styled *Bætus* and *Thebanus*. Kämpfer has a curious history of a deity of this sort called *Abutto*; whose temple stood in the province of Bungo, upon the sea-

shore, near the village of Toma. About a quarter of a German mile before you come to this village, stands a famous temple of the god *Abutto*; which is said to be very eminent for miraculously curing many inveterate distempers, as also for procuring a wind and good passage. For this reason, sailors and passengers always tie some farthings to a piece of wood, and throw it into the sea, as an offering to this *Abutto*, to obtain a favourable wind. The same deity, but under a different name, was worshipped in China. The *Apis*, *Mneuis*, and *Anubis* of Egypt, have often been mentioned and explained as well as the *Minotaur* of Crete. The same hieroglyphics occur in Japan; and we are informed by Marco Polo, that the inhabitants worship idols of different shapes. Some have the head of an ox, some of a swine, and others the head of a dog. The most common representation in this country is that of *Godso Ten Oo*, or 'the ox-headed prince of heaven.'

"It has already been taken notice, that the ark was represented under the symbol of an egg, called the *mundane egg*; which was exposed to the rage of Typhon. It was also described under the figure of a lunette, and called *Sælene*, the moon. The person by whom it was framed, and who through its means was providentially preserved, occurs under the character of a steer, and the machine itself under the semblance of a cow or heifer. We have moreover been told that it was called *Cibotus*, which Clemens of Alexandria calls *Thebotha*. Epiphanius mentions it by the name of *Idaal Baoth*; and says that, according to an eastern tradition, a person named *Nun* was preserved in it. The horse of Neptune was another emblem, as was also the hippopotamus or river-horse. The people of Elis made use of the tortoise for the same purpose, and represented Venus as resting upon its back. Some traces of these hieroglyphics are to be found in Japan, which were certainly carried thither by the Indic Ethiopians.

"From an account of a temple of *Daiboth* (probably the same with *Daibod*) at Meaco in Japan, we may perceive that the people there speak of the renewal of the world at the deluge as the real creation, which I have shown to be a common mistake in the histories of this event. And though the story is told with some variation, yet in all the circumstances of consequence it accords very happily with the mythology of Egypt, Syria, and Greece. It matters not how the emblems have by length of time been misinterpreted. We have the *mundane egg* upon the waters, and the concomitant symbol of the moon; and the egg at last opened by the assistance of the sacred steer, upon which the world issues forth to this day." The author proceeds afterwards to mention the great veneration paid in these parts to the ox and cow; and says, that nobody dares injure them. One deity of the Japanese was Canon, the reputed lord of the ocean. He was represented in an erect posture, crowned with a flower, and coming out of the mouth of a fish. He is represented in the same manner by the natives of India, and named *Vishnou* and *Macauter*; and he is to be found in other parts of the East. Father Bousshet mentions a tradition among the Indians concerning a flood in the days of *Vishnou* which covered the whole earth. It is moreover reported of him, that seeing the prevalence

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of the waters, he made a float; and being turned into a fish, he steered it with his tail. This person, in the account of the Banians by Lord, is called *Menow*; which certainly should be expressed *Men-Now*. It is said, that in the Shaster of this people, a like history is given of the earth being overwhelmed by a deluge, in which mankind perished; but the world was afterwards renewed in two persons called *Menou* and *Ceteroupa*. Vishnou is described under many characters, which he is said at times to have assumed. One of these, according to the bramins of Tanjour, was that of Rama Sami. This undoubtedly is the same as Sama Rama of Babylonia, only reversed: and it relates to that great phenomenon the Iris; which was generally accompanied with the dove, and held in veneration by the Semarim.

"As the history of China is supposed to extend upwards to an amazing height, it may be worth while to consider the first eras in the Chinese annals, as they are represented in the writings of Japan: for the Japanese have preserved histories of China; and by such a collation, I believe no small light may be obtained towards the discovery of some important truths. Hitherto it has not been observed that such a collation could be made.

"In the histories of this country, the first monarch of China is named *Foki*; the same whom the Chinese call *Fohi*, and place at the head of their list. This prince had, according to some, the body, according to others the head, of a serpent. If we may believe the Japanese historians, he began his reign above 21,000 years before Christ. The second Chinese emperor was Sin Noo, by the people of China called *Sin Num*; and many begin the chronology of the country with him. He is supposed to have lived about 3000 years before Christ; consequently there is an interval of near 18,000 years between the first emperor and the second; a circumstance not to be credited. The third, who immediately succeeded Sin-Noo, was Hoam-Ti. In this account we may, I think, perceive, that the Chinese have acted like the people of Greece and other regions. The histories which were imported they have prefixed to the annals of their nation; and adopted the first personages of antiquity, and made them monarchs in their own country. Whom can we suppose Fohi, with the head of a serpent, to have been, but the great founder of all kingdoms, the father of mankind? They have placed him at an immense distance, not knowing his true era. And I think we may be assured, that under the character of Sin Num and Sin-Noo we have the history of Noah; and Haam-Ti was no other than Ham. According to Kæmpfer, Sin-Noo was exactly the same character as Serapis of Egypt. 'He was an husbandman, and taught mankind agriculture, and those arts which relates to the immediate support of life. He also discovered the virtues of many plants; and he was represented with the head of an ox, and sometimes only with two horns. His picture is held in high estimation by the Chinese.' Well indeed might Kæmpfer think, that in Sin-Noo he saw the character of Serapis; for his personage was no other than Sar-Apis, the great father of mankind, the same as Men-Neuas of Egypt, the same also as Dionus and Osiris. By Du Halde he is called *Chin-Nong*, and made the next monarch after Fohi. The Chinese

accounts afford the same history as has been given above.

"As the family of Noah consisted of eight persons inclusive, there have been writers who have placed some of them in succession, and supposed that there were three or four persons who reigned between Sin-Noo and Hoam. But Du Halde says, that in the true histories of the country, the three first monarchs were Fohi, Chin-Nong, and Hoam, whom he styles *Hoang-Ti*. To these, he says, the arts and sciences owe their invention and progress. Thus we find, that those who were heads of families have been raised to be princes; and their names have been prefixed to the list of kings, and their history superadded to the annals of the country. It is further observable, in the accounts given of those supposed kings, that their term of life, for the first five or six generations, corresponds with that of the patriarchs after the flood, and decreases much in the same proportion.

"The history of Japan is divided into three eras; which consist of gods, demigods, and mortals. The person whom the natives look upon to be the real founder of their monarchy is named *Synmu*; in whose reign the Sintoo religion, the most ancient of the country, was introduced. It was called *Sin-sju* and *Chami-mitsa*; from Sin and Chami, the deities which were the objects of worship. At this time it is said that 600 foreign idols were brought into Japan. To the Sintoo religion was afterwards added the Budso, together with the worship of Armida. This deity they commonly represented with the head of a dog, and esteemed him the guardian of mankind. This religion was more complicated than the former, and abounded with hieroglyphical representations and mysterious rites. It is the same which I have termed the *Arkite Idolatry*, wherein the sacred steer and cow were venerated. The deity was represented upon the lotus and upon a tortoise, and oftentimes as proceeding from a fish. In this also, under the character of Budha, we may trace innumerable memorials of the ark, and of the person preserved in it. The author above, having mentioned the eleventh emperor inclusive from Syn Mu, tells us, that in his time these rites began. 'In his reign Budo, otherwise called Koborus, came over from the Indies to Japan; and brought with him, upon a white horse, his religion and doctrines.' We find here, that the object of worship is made the person who introduced it (a mistake almost universally prevalent); otherwise in this short account, what a curious history is unfolded!

"The only people to whom we can have recourse for any written memorials concerning these things are the inhabitants of India Proper. They were, we find, the persons who introduced these hieroglyphics both in China and Japan. It will therefore be worth while to consider what they have transmitted concerning their religious opinions; as we may from hence obtain still greater light towards explaining this symbolical worship. Every manifestation of God's goodness to the world was in the first ages expressed by an hieroglyphic; and the Deity was accordingly described under various forms, and in different attitudes. These at length were mistaken for real transfigurations; and Vishnou was supposed to have appeared in different shapes, which were styled *incarnations*.

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18

History of Japan.

17
Japanese
history of
China.

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tions. In one of these he is represented under the figure before mentioned, of a princely person coming out of a fish. In another he appears with the head of a boar, treading upon an evil dæmon, which seems to be the same as the Typhon of the Egyptians. On his head he supports a lunette, in which are seen cities, towers, in short, all that the world contains. In Baldæus we have a delineation and history of this incarnation. Kircher varies a little in his representation, yet gives him a similar figure of the Deity, and styles him *Vishnou Barachater*. By this I should think was signified Vishnou, "the offspring of the fish." The bramins say, that there was a time when the serpent with a thousand heads withdrew itself, and would not support the world, it was so overburdened with sin. Upon this the earth sunk in the great abyss of waters, and mankind and all that breathed perished. But Vishnou took upon himself the form above described, and diving to the bottom of the sea, lifted up the earth out of the waters, and placed it, together with the serpent of a thousand heads, upon the back of a tortoise.

19
Account of
the cosmogony and
deluge
given by the
Parsees.

"In the third volume of M. Perron's *Zendavesta*, there is an account given of the cosmogony of the Parsees; also of the subsequent great events that ensued. The supreme Deity, called by him *Ormisdâ*, is said to have accomplished the creation at six different intervals. He first formed the heavens; at the second the waters; at the third the earth. Next in order were produced the trees and vegetables: in the fifth place were formed birds and fishes, and the wild inhabitants of the woods; and in the sixth and last place, he created man. The man thus produced is said to have been an *ox-like* person, and is described as consisting of a purely divine and a mortal part. For some time after his creation he lived in great happiness; but at last the world was corrupted by a dæmon named *Ahriman*. This dæmon had the boldness to visit heaven: whence he came down to the earth in the form of a serpent, and introduced a set of wicked beings, called *karsesters*. By him the first ox-like personage, called *Aboudad*, was so infected that he died; after which *Kaiomorts*, probably the divine part, of which the ox was the representative, died also. Out of the left arm of the deceased proceeded a being called *Goschoraun*, who is said to have raised a cry louder than the shout of 1000 men. After some conversation between the supreme Deity and *Goschoraun*, it was determined to put *Ahriman* to flight, and to destroy all those wicked persons he had introduced; for there now seemed to be an universal opposition to the supreme Deity *Ormisdâ*. At this season a second ox-like personage is introduced by the name of *Taschter*. He is spoken of both as a star and a sun. At the same time he is mentioned as a person upon earth under three forms. By *Taschter* is certainly signified *De Ashter*; the same person whom the Greeks and Syrians represented as a female, and called *Asarte*. She was described horned, and sometimes with the head of a bull; supposed to proceed from an egg; and they esteemed her the same as Juno and the moon. At last it was thought proper to bring an universal inundation over the face of the earth; that all impurity might be washed away; which being accomplished by *Taschter*, every living creature perished, and the earth

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was for some time entirely covered. At last, the waters retreating within their proper bounds, the mountain of Albordi in Ferakh-kand first appeared; which the author compares to a tree, and supposes that all other mountains proceeded from it. After this there was a renewal of the world; and the earth was restored to its pristine state. The particular place where *Ormisdâ* planted the germina from whence all things were to spring, was Ferakh-kand, which seems to be the land of Arach; the country upon the Araxes in Armenia."

Thus we have given an ample specimen of this very ingenious author's method of reasoning, and discovering traces of the sacred history even in things which have been thought least to relate to it. That the Greeks and western nations had some knowledge of the flood, has never been denied; and from what has been already related, it appears that the same has pervaded the remotest regions of the east. The knowledge which these people have of the fall of man, and the evil consequences which ensued, cannot, according to our author, be the consequences of their intercourse with Christians; for their traditions afford neither any traces of Christianity, nor its founder. Whatever truths may be found in their writings, therefore, must be derived from a more ancient source. "There are (says he) in every climate some shattered fragments of original history; some traces of a primitive and universal language: and these may be observed in the names of deities, terms of worship, and titles of honour, which prevail among nations widely separated, who for ages had no connection. The like may be found in the names of pagodas and temples; and of sundry other objects which will present themselves to the traveller. Even America would contribute to this purpose. The more rude the monuments, the more ancient they may possibly prove, and afford a greater light upon inquiry."

The accounts hitherto met with in this continent, indeed, are far from being equally authentic and satisfactory with those hitherto treated of. In Acasta's history of the Indies, however, we are informed, that the Mexicans make particular mention of a deluge in their country, by which *all men* were drowned. According to them, one *Viracocha* came out of the great lake Titicaca in their country. This person staid in Tiaguanaco, where at this day are to be seen the ruins of some ancient and very strange buildings. From thence he came to Cusco, where mankind began to multiply. They show also a small lake, where they say the sun hid himself: for which reason they sacrifice largely to him, both men and other animals.—Hennepin informs us, that some of the savages are of opinion, that a certain spirit, called *Otkon* by the Iroquois, and *Atabauta* by those at the mouth of the river St Laurence, is the Creator of the world; that *Messou* repaired it after the deluge. They say, that this *Messou* or *Otkon*, being a-hunting one day, his dogs lost themselves in a great lake, which thereupon overflowing, covered the whole earth in a short time, and swallowed up the world. According to Herrera, the people of Cuba knew that the heavens and the earth had been created; and said they had much information concerning the flood; and that the world had been destroyed by water, by three persons, who

came

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20
American
accounts of
the deluge.

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came three several ways. Gabriel de Cabrera was told by a man of more than 70 years of age, that an old man, knowing the deluge was to come, built a great ship, and went into it with his family and abundance of animals; that he sent out a crow, which did not at first return, staying to feed on the carcases of dead animals, but afterwards came back with a green branch. He is said to have added other particulars nearly consonant to the Mosaic account, as far as Noah's sons covering him when drunk, and the other scoffing at it. The Indians, he said, descended from the latter, and therefore had no clothes; but the Spaniards descending from the former, had both clothes and horses.—The same author likewise informs us, that it was reported by the inhabitants of Castilla del Oro in Terra Firma, that when the universal deluge happened, one man with his wife and children escaped in a canoe, and that from them the world was peopled. The Peruvians, according to our author, likewise affirmed, that they had received by tradition from their ancestors, that, many years before there were any incas or kings, when the country was very populous, there happened a great flood; the sea breaking out beyond its bounds, so that the land was covered with water, and all the people perished. To this it is added by the Guancas, inhabiting the vale of Xausa, and the natives of Chiquito in the province of Callao, that some persons remained in the hollows and caves of the highest mountains, who again peopled the land. Others affirm, that all perished in a deluge, only six persons being saved in a float, from whom descended all the inhabitants of that country. In Nieuhoff's voyages to Brasil, we are informed, that the most barbarous of the Brasilians, inhabiting the inland countries, scarce knew any thing of religion or an Almighty Being: they have some knowledge remaining of a general deluge; it being their opinion that the whole race of mankind were extirpated by a general deluge, except one man and his sister, who, being with child before, they by degrees repopled the world. M. Thevet gives us the creed of the Brasilians in this matter more particularly. In the opinion of these savages the deluge was universal. They say, that *Sommay*, a Caribbee of great dignity, had two children named *Tamendonare* and *Ariconte*. Being of contrary dispositions, one delighting in peace and the other in war and rapine, they mortally hated each other. One day *Ariconte*, the warrior, brought an arm of an enemy he had encountered to his brother, reproaching him at the same time with cowardice. The other retorted by telling, that if he had been possessed of the valour he boasted, he would have brought his enemy entire. *Ariconte* on this threw the arm against the door of his brother's house. At that instant the whole village was carried up into the sky, and *Tamendonare* striking the ground with violence, a vast stream of water issued out from it, and continued to flow in such quantity, that in a short time it seemed to rise above the clouds, and the earth was entirely covered. The two brothers, seeing this, ascended the highest mountains of the country, and with their wives got upon the trees that grew upon them. By this deluge all mankind, as well as all other animals, were drowned, except the two brothers above-mentioned and their wives; who having descended when the flood abated, became heads of two different nations," &c.

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To these American testimonies we may add another from the remote and uncivilized island of Otaheite. Dr Watson†, in his discourse to the clergy, informs us, that one of the navigators to the southern hemisphere having asked some of the inhabitants of that island concerning their origin, was answered, that their supreme God, a long time ago, being angry, dragged the earth through the sea, and their island being broken off, was preserved. In the East Indies, we are informed by Dr Watson ‡, that Sir William Jones, by whom a society for the advancement of Asiatic literature has been instituted at Calcutta, has discovered, that in the oldest mythological books of that country, there is such an account of the deluge as corresponds sufficiently with that of Moses.

II. The fact being thus established by the universal consent of mankind, that there was a general deluge which overflowed the whole world; it remains next to inquire, by what means it may reasonably be supposed to have been accomplished. The hypotheses on this subject have been principally the following.

1. It has been asserted, that a quantity of water was created on purpose, and at a proper time annihilated, by divine power. This, however, besides its being absolutely without evidence, is directly contrary to the words of the sacred writer whom the asserters of this hypothesis mean to defend. He expressly derives the waters of the flood from two sources; first, the fountains of the great deep, which he tells us were all broken up; and secondly, the windows of heaven, which he says were opened: and speaking of the decrease of the waters, he says, the fountains of the deep and the windows of heaven were stopped, and the waters returned continually from off the earth. Here it is obvious, that Moses was so far from having any difficulty about the quantity of water, that he thought the sources from whence it came were not exhausted; since both of them required to be stopped by the same almighty hand who opened them, lest the flood should increase more than it actually did.

2. Dr Burnet, in his *Telluris Theoria Sacra*, endeavours to show, that all the waters in the ocean are not sufficient to cover the earth to the depth assigned by Moses. Supposing the sea drained quite dry, and all the clouds of the atmosphere dissolved into rain, we should still, according to him, want much the greatest part of the water of a deluge. To get clear of this difficulty, Dr Burnet and others have adopted Descartes's theory. That philosopher will have the antediluvian world to have been perfectly round and equal, without mountains or valleys. He accounts for its formation on mechanical principles, by supposing it at first in the condition of a thick turbid fluid replete with divers heterogeneous matters; which, subsiding by slow degrees, formed themselves into different concentric strata, or beds, by the laws of gravity. Dr Burnet improves on this theory, by supposing the primitive earth to have been no more than a shell or crust investing the surface of the water contained in the ocean, and in the central abyss which he and others suppose to exist in the bowels of the earth*. At the time of the flood, this outward crust, according to him, broke in a thousand places; and consequently sunk down among the water, which thus spouted up in vast cataraets, and overflowed the whole surface. He supposes also, that before the flood there was a

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21
Testimonies
from Ota-
heite and
the East In-
dies.

† *Sermons
and Tracts*,
p. 208.
‡ *Ibid.*
p. 221.

22
Hypotheses
concerning
the means
by which
the deluge
took place.

23
Supposed
creation and
annihilation
of water.

24
Theory of
Dr Burnet.

*See *Abyss*.

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perfect coincidence of the equator with the ecliptic, and consequently that the antediluvian world enjoyed a perpetual spring; but that the violence of the shock by which the outer crust was broken, shifted also the position of the earth, and produced the present obliquity of the ecliptic. This theory, it will be observed, is equally arbitrary with the former. But it is, besides, directly contrary to the words of Moses, who assures us, that all the high hills were covered; while Dr Burnet affirms that there were then no hills in being.

25
Centre of gravity of the earth supposed to be shifted.

26
Mr Whiston's theory.

3. Other authors, supposing a sufficient fund of water in the abyss or sea, are only concerned for an expedient to bring it forth: accordingly some have recourse to a shifting of the earth's centre of gravity, which, drawing after it the water out of its channel, overwhelmed the several parts of the earth successively.

4. The inquisitive Mr Whiston, in his *New Theory of the Earth*, shows, from several remarkable coincidences, that a comet descending in the plane of the ecliptic, towards its perihelion, passed just before the earth on the first day of the deluge; the consequences whereof would be, first, that this comet, when it came below the moon, would raise a vast and strong tide, both in the small seas, which according to his hypothesis were in the antediluvian earth (for he allows no great ocean there as in ours), and also in the abyss which was under the upper crust of the earth. And this tide would rise and increase all the time of the approach of the comet towards the earth; and would be at its greatest height when the comet was at its least distance from it. By the force of which tide, as also by the attraction of the comet, he judges, that the abyss must put on an elliptical figure, whose surface being considerably larger than the former spherical one, the outward crust of the earth, incumbent on the abyss, must accommodate itself to that figure, which it could not do while it held solid, and conjoined together. He concludes, therefore, that it must of necessity be extended, and at last broken by the violence of the said tides and attraction; out of which the included water issuing, was a great means of the deluge: this answering to what Moses speaks of the "fountains of the great deep being broke open."—Again, the same comet, he shows, in its descent towards the sun, passed so close by the body of the earth, as to involve it in its atmosphere and tail for a considerable time; and of consequence left a vast quantity of its vapours, both expanded and condensed, on its surface: a great part of which being rarified by the solar heat, would be drawn up into the atmosphere, and afterwards return in violent rains: and this he takes to be what Moses intimates by "the windows of heaven being opened," and particularly by the "forty days rain." For as to the following rain, which with this made the whole time of raining 150 days, Mr Whiston attributes it to the earth coming a second time within the atmosphere of the comet as the comet was on its return from the sun. Lastly, to remove this vast orb of waters again, he supposes a mighty wind to have arisen, which dried up some, and forced the rest into the abyss through the clefts by which it came up: only a good quantity remained in the alveus of the great ocean, now first made, and in lesser seas, lakes, &c. This theory was at first only proposed

as an hypothesis; but, on further consideration, Mr Whiston thought he could actually prove that a comet did at that time pass very near the earth, and that it was the same which afterwards appeared in 1680. After this, he looked upon his theory no longer as an hypothesis, but published it in a particular tract, entitled *The Cause of the Deluge demonstrated*. But the uncertainty of the comet's return in 1758, and the absolute failure of that which ought to have appeared in 1788 or 1789, must certainly render Mr Whiston's calculations for such a length of time extremely dubious: and the great similarity between the tails of comets and streams of electric matter, renders his supposition of their being aqueous vapours exceedingly improbable.

5. According to Mr de la Pryme, the antediluvian world had an external sea as well as land, with mountains, rivers, &c. and the deluge was effected by breaking the subterraneous caverns, and pillars thereof, with dreadful earthquakes, and causing the same to be for the most part, if not wholly, absorbed and swallowed up, and covered by the seas that we now have. Lastly, this earth of ours arose out of the bottom of the antediluvian sea; and in its room, just as many islands are swallowed down, and others thrust up in their stead. On this, as on all the other hypotheses, it may be remarked, that it is quite arbitrary, and without the least foundation from the words of Moses. The sacred historian speaks not one word of earthquakes, nay, from the nature of the thing, we know it is impossible that the flood could have been occasioned by an earthquake, and the ark preserved, without a miracle. It is certain, that if a ship sinks at sea, the commotion excited in the water by the descent of such a large body, will swallow up a small boat that happens to come too near. If the pillars of the earth itself then were broken, what must the commotion have been, when the continents of Europe, Asia, and Africa, descended into the abyss at once; not to mention America, which lying at so great a distance from Noah, he might be supposed out of danger from that quarter. By what miracle was the little ark preserved amidst the tumult of those impetuous waves which must have rushed in from all quarters? Besides, as the ark was built not at sea, but on dry ground, when the earth on which it rested sunk down, the ark must have sunk along with it; and the waters falling in as it were overhead, must have dashed in pieces the strongest vessel that can be imagined. Earthquakes, also, operate suddenly and violently; whereas, according to the Mosaic account, the flood came on gradually, and did not arrive at its height till six weeks, or perhaps five months, after it began.

6. Mr Hutchinson and his followers present us with a theory of the deluge, which they pretend to derive from the word of God itself. This theory hath been particularly enlarged upon and illustrated by Mr Catcot, who in 1768 published a volume on the subject. This gentleman asserts, that when the world was first created, at the time when it is said to have been "without form and void," the terrestrial matter was then entirely dissolved in the aqueous; so that the whole formed, as it were, a thick muddy water. The figure of this mass was spherical; and on the outside of this sphere lay the gross dark air. Within the sphere of earth and water was an immense cavity, called by Mo-

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27
Theory of Mr de la Pryme.

28
Hutchinsonian theory.

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ses the deep; and this internal cavity was filled with air of a kind similar to that on the outside. On the creation of light, the internal air received elasticity sufficient to burst out through the external covering of earth and water. Upon this the water descended, filled up the void, and left the earth in a form similar to what it hath at present. Thus, according to him, the antediluvian world, as well as the present, consisted of a vast collection or nucleus of water, called the *great deep*, or the *abyss*; and over this the shell of earth perforated in many places; by which means the waters of the ocean communicated with the abyss. The breaking up of these fountains was occasioned by a miraculous pressure of the atmosphere, from the immediate action of the Deity himself. So violent was this pressure, that the air descended to where it had been originally; occupied the space of the abyss; and drove out the waters over the whole face of the dry land. But this account, so far from being infallibly certain, seems inconsistent with the most common observation. No pressure, however violent, will cause water rise above its level, unless the pressure is unequal. If, therefore, the atmosphere entered into the supposed abyss, by a vehement pressure on the surface of the ocean, that pressure must only have been on one place, or on a few places; and even though we suppose the atmosphere to have been the agent made use of, it is impossible that it could have remained for any time in the abyss without a continued miracle; as the pressure of the water would immediately have forced it up again through those holes which had afforded it a passage downwards.

The explication given from Hutchinson by Mr Catcot, of the "windows of heaven," is somewhat extraordinary. According to him, these windows are not in heaven, but in the bowels of the earth; and mean no more than the cracks and fissures by which the *airs*, as he calls them, found a passage through the shell or covering of earth, which they utterly dissolved and reduced to its original state of fluidity. It is, however, difficult to conceive how the opening of such windows as these could cause a violent rain for 40 days and nights.

It is not to be supposed, that we can pretend to ascertain any thing on the subject more than others have done. The following conjectures, however, may be offered on the manner in which the deluge might have happened, without any violence to the established laws of nature.

1. If we consider the quantity of water requisite for the purpose of the deluge, it will not appear so very extraordinary as has been commonly represented. The height of the highest hills is thought not to be quite four miles. It will therefore be deemed a sufficient allowance, when we suppose the waters of the deluge to have been four miles deep on the surface of the ground. Now it is certain, that water, or any other matter, when spread out at large upon the ground, seems to occupy an immense space in comparison of what it does when contained in a cubical vessel, or when packed together in a cubical form. Suppose we wanted to overflow a room 16 feet every way, or containing 256 square feet, with water, to the height of one foot, it may be nearly done by a cubical vessel of six feet filled with water. A cube of eight feet will

cover it two feet deep, and a cube of ten feet will very nearly cover it four feet deep. It makes not the least difference whether we suppose feet or miles to be covered. A cube of ten miles of water would very nearly overflow 256 square miles of plain ground to the height of four miles. But if we take into our account the vast number of eminences with which the surface of the earth abounds, the above-mentioned quantity of water would do a great deal more. If, therefore, we attempt to calculate the quantity of water sufficient to deluge the earth, we must make a very considerable allowance for the bulk of all the hills on its surface. To consider this matter, however, in its utmost latitude: The surface of the earth is supposed, by the latest computations, to contain 199,512,595 square miles. To overflow this surface to the height of four miles, is required a parallelopiped of water 16 miles deep, and containing 49,878,148 square miles of surface. Now, considering the immense thickness of the globe of the earth, it can by no means be improbable, that this whole quantity of water may be contained in its bowels, without the necessity of any remarkable abyss or huge collection of water, such as most of our theorists suppose to exist in the centre. It is certain, that as far as the earth has been dug, it hath been found not dry, but moist; nor have we the least reason to imagine, that it is not at least equally moist all the way down to the centre. How moist it really is cannot be known, nor the quantity of water requisite to impart to it the degree of moisture it has; but we are sure it must be immense. The earth is computed to be near 8000 miles in diameter. The ocean is of an unfathomable depth; but there is no reason for supposing it more than a few miles. To make all reasonable allowance, however, we shall suppose the whole solid matter in the globe to be only equal to a cube of 5000 miles; and even on this supposition we shall find, that all the waters of the deluge would not be half sufficient to moisten it. The above-mentioned parallelopiped of water would indeed contain 798,050,368 cubic miles of the fluid; but the cube of earth containing no less than an hundred and twenty-five thousand millions of cubic miles, it is evident that the quantity assigned for the deluge would scarce be known to moisten it. It could have indeed no more effect this way, than a single pound of water could have upon 150 times its bulk of dry earth. We are persuaded therefore, that any person who will try by experiment how much water a given quantity of earth contains, and from that experiment will make calculations with regard to the whole quantity of water contained in the bowels of the earth, must be abundantly satisfied, that though *all* the water of the deluge had been thence derived, the diminution of the general store would, comparatively speaking, have been next to nothing.

2. It was not from the bowels of the earth only that the waters were discharged, but also from the air; for we are assured by Moses, that it rained 40 days and 40 nights. This source of the diluvian waters hath been considered as of small consequence by almost every one who hath treated on the subject. The general opinion concerning this matter we shall transcribe from the Universal History, Vol. I. where it is very fully expressed. "According to the observations made of the

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quantity of water that falls in rain, the rains could not afford one ocean, nor half an ocean, and would be a very inconsiderable part of what was necessary for a deluge. If it rained 40 days and 40 nights throughout the whole earth at once, it might be sufficient to lay all the lower grounds under water, but it would signify very little as to the overflowing of the mountains; so that it has been said, that if the deluge had been made by rains only, there would have needed not 40 days, but 40 years, to have brought it to pass. And if we suppose the whole atmosphere condensed into water, it would not all have been sufficient for this effect; for it is certain that it could not have risen above 32 feet, the height to which water can be raised by the pressure of the atmosphere: for the weight of the whole air, when condensed into water, can be no more than equal to its weight in its natural state, and must become no less than 800 times denser; for that is the difference between the weight of the heaviest air and that of water."

On this subject we must observe, that there is a very general mistake with regard to the air; similar to the above-mentioned one regarding the earth. Because the earth below our feet appears to our senses firm and compact, therefore the vast quantity of water, contained even in the most solid parts of it, and which will readily appear on proper experiment, is overlooked, and treated as a non-entity. In like manner, because the air does not always deluge with excessive rains, it is also imagined that it contains but very little water. Because the pressure of the air is able to raise only 32 feet of water on the surface of the earth, it is therefore supposed we may know to what depth the atmosphere could deluge the earth if it was to let fall the whole water contained in it. But daily observation shows, that the pressure of the atmosphere hath not the least connection with the quantity of water it contains. Nay, if there is any connection, the air seems to be lightest when it contains most water. In the course of a long summer's drought, for instance, the mercury in the barometer will stand at 30 inches, or little more. If it does so at the beginning of the drought, it ought to ascend continually during the time the dry weather continues; because the air is all the while absorbing water in great quantity from the surface of the earth and sea. This, however, is known to be contrary to fact. At such times the mercury does not ascend, but remains stationary; and what is still more extraordinary, when the drought is about to have an end, the air, while it yet contains the whole quantity of water is absorbed, and hath not discharged one single drop, becomes suddenly lighter, and the mercury will perhaps sink an inch before any rain falls. The most surprising phenomenon, however, is yet to come. After the atmosphere has been discharged for a number of days successively, a quantity of matter 800 times heavier than itself, instead of being *lightened* by the discharge, it becomes *heavier*, nay, *specifically* heavier, than it was before. It is also certain, that very dry air, provided it is not at the same time very hot, is always heaviest; and the driest air which we are acquainted with, namely Dr Priestley's *dephlogisticated* air, is considerably heavier than the air we commonly breathe. For these reasons, we think the quantity of water contained in the whole atmosphere ought to be con-

sidered as *indefinite*, especially as we know that by whatever agent it is suspended, that agent must counteract the force of gravity, otherwise the water would immediately descend; and while the force of gravity in any substance is counteracted, that substance cannot appear to us to gravitate at all.

3. The above considerations render it *probable* at least that there is in nature a quantity of water sufficient to deluge the world, provided it was applied to the purpose. We must next consider whether there is any natural agent powerful enough to effectuate this purpose. We shall take the phrases used by Moses in their most obvious sense. The *breaking up of the fountains of the deep*, we may reasonably suppose to have been the opening of all passages whether small or great, through which the subterraneous waters possibly could discharge themselves on the surface of the earth. The *opening of the windows of heaven* we may also suppose to be the pouring out the water contained in the atmosphere, thro' those invisible passages by which it enters in such a manner as totally to elude every one of our senses, as when water is absorbed by the air in evaporation. As both these are said to have been opened at the same time, it seems from thence probable, that one natural agent was employed to do both. Now it is certain, that the industry of modern inquirers hath discovered an agent unknown to the former ages, and whose influence is so great, that with regard to this world, it may be said to have a kind of *omnipotence*. The agent we mean is electricity. It is certain, that, by means of it, immense quantities of water can be raised to a great height in the air. This is proved by the phenomena of water spouts. Mr Forster relates, that he happened to see one break very near him, and observed a flash of lightning proceed from it at the moment of its breaking. The conclusion from this is obvious. When the electric matter was discharged from the water, it could no longer be supported by the atmosphere, but immediately fell down. Though water spouts do not often appear in this country, yet every one must have made an observation somewhat similar to Mr Forster's. In a violent storm of thunder and rain, after every flash of lightning or discharge of electricity from the clouds, the rain pours down with increased violence; thus showing, that the cloud, having parted with so much of its electricity, cannot longer be supported in the form of vapour, but must descend in rain. It is not indeed yet discovered that electricity is the cause of the suspension of water in the atmosphere; but it is certain that evaporation is promoted by electrifying the fluid to be evaporated*. It may therefore be admitted as a *possibility*, that the electric fluid contained in the air is the agent by which it is enabled to suspend the water which rises in vapour. If therefore the air is deprived of the due proportion of this fluid, it is evident that rain must fall in prodigious quantities.

Again, we are assured from the most undeniable observations, that electricity is able to swell up water on the surface of the earth. This we can make it do even in our trifling experiments; and much more must the whole force of the fluid be supposed capable of doing it, if applied to the waters of the ocean, or any others. The agitation of the sea in earthquakes is a sufficient proof of this†. It is certain, that at these times there is a discharge of a vast quantity of electric matter from

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* See Electricity and Evaporation.

† See Earthquake.

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the earth into the air; and as soon as this happens, all becomes quiet on the surface of the earth.

From a multitude of observations it also appears, that there is at all times a passage of electric matter from the atmosphere into the earth, and *vice versa*, from the earth into the atmosphere. There is therefore no absurdity in supposing the Deity to have influenced the action of the natural powers in such a manner, that for 40 days and nights the electric matter contained in the atmosphere should descend into the bowels of the earth;—if indeed there is occasion for supposing any such immediate influence at all, since it is not impossible that there might have been, from some natural cause, a descent of this matter from the atmosphere for that time. But by whatever cause the descent was occasioned, the consequence would be, the *breaking up of the fountains of the deep*, and the *opening the windows of heaven*. The water contained in the atmosphere being left without support, would descend in impetuous rains; while the waters of the ocean, those from which fountains originate, and those contained in the solid earth itself, would rise from the very centre, and meet the waters which descended from above. Thus the breaking up of the fountains of the deep, and the opening the windows of heaven, would accompany each other, as Moses tells us they actually did; for, according to him, both happened on the same day.

In this manner the flood would come on quietly and gradually, without that violence to the globe which Burnet, Whiston, and other theorists, are obliged to suppose. The abatement of the waters would ensue on the ascent of the electric fluid to where it was before. The atmosphere would then absorb the water as formerly; that which had ascended through the earth would again subside; and thus every thing would return to its pristine state.

III. Having thus shown in what manner it is possible that an universal deluge might take place by means of the natural agents known to us at present, we shall next consider some more of the evidences that such an event actually did happen, and that the deluge was universal. The proof here is so strong from the tradition prevalent among almost every nation on the face of the earth, and which have been already so amply treated, that no farther objection could be made to the Mosaic account, were it not that the necessity of an universal deluge is denied by some, who contend that all the deluges mentioned in history or recorded by tradition were only partial, and may be accounted for from the swelling of rivers or other accidental causes. Many indeed, even of those who profess to believe the Mosaic account, have thought that the deluge was not universal; or, though it might be universal with respect to mankind, that it was not so with regard to the earth itself. The learned Isaac Vossius was of this opinion, though his reasons seem principally to have been that he could not conceive how an universal deluge could happen. "To effect this (says he) many miracles must have concurred; but God works no miracles in vain. What need was there to drown those lands where no men lived, or are yet to be found? 'Tis a foolish thing to think that mankind had multiplied so much before the flood as to have overspread all the earth. How slow and sluggish

30
Vossius's
scheme of
partial de-
luge.

the first men were in propagating their kind, is evident from hence, that Noah was but the ninth in a lineal descent from Adam. They are quite wide of the truth, therefore, who think mankind to have spread over all the earth in the days of Noah, who perhaps at that time had not extended themselves beyond the borders of Syria and Mesopotamia: but no reason obligeth us to extend the inundation of the deluge beyond those bounds which are inhabited; yea, it is altogether absurd to aver, that the effect of a punishment inflicted upon mankind only, should extend to those places where no men lived. Altho' we should therefore believe that part of the earth only to have been overflowed by the waters which we have mentioned, and which is not the hundredth part of the terrestrial globe, the deluge will nevertheless be *universal, æcumenical*, since the destruction was universal, and overwhelmed the whole habitable world."

Another scheme of a partial deluge is published by Mr Coetlogon in his Universal History of Arts and Sciences, under the article *Antediluvians*. This appears to have been formed with a design to accommodate the belief of a deluge to the opinions of the free-thinkers, who deny the truth of the Mosaic accounts, as he tells us that they are willing to allow it. According to this author, the first inhabitants of the earth being placed at the confluence of two great rivers, the Euphrates and Tigris, those rivers may have overflowed their banks all of a sudden, and surprised the neighbouring inhabitants not yet accustomed to such sorts of visits, and drowned part of them (and if really designed as a punishment), such as were more guilty. That some of the animals, particularly the more slothful, and consequently not so apprehensive of danger or so ready to take to flight to avoid it, might have been involved in the same calamity, as well as some of the *volatiles*, which being deprived of food by the earth's being covered with water, might have perished; particularly those who, by the too great weakness of their wings to support their bodies, were not proper for a long flight. As for others who had these advantages above the rest, they would no doubt take care of their own preservation, by flying to those parts of the earth which their natural instinct could show them free from the inundation.

A third scheme of a partial deluge is given by the learned bishop Stillingfleet in his *Origines Sacre*. "I cannot (says he) see any urgent necessity from the scripture to assert, that the flood did spread itself all over the surface of the earth. That all mankind (those in the ark excepted) were destroyed by it, is most certain, according to the scriptures. When the Lord said, that he would destroy man from the face of the earth, it could not be any particular deluge of so small a country as Palestine, as some have ridiculously imagined; for we find an universal corruption in the earth mentioned as the cause; an universal threatening upon all men for this cause; and afterwards an universal destruction expressed as the effect of this flood. So then it is evident, that the flood was universal with regard to mankind; but from thence follows no necessity at all of asserting the universality of it as to the globe of the earth, unless it be sufficiently proved that the whole earth was peopled before the flood, which I despair of ever seeing proved; and

Deluge.

31
Coetlo-
gon's
scheme.

32
Bishop Stil-
lingfleet's
scheme.

Deluge.

and what reason can there be to extend the flood beyond the occasion of it, which was the corruption of mankind?—The only probability then of asserting the universality of the flood, as to the globe of the earth, is from the destruction of all living creatures, together with man. Now though men might not have spread themselves over the whole surface of the earth, yet beasts and creeping things might, which were all destroyed with the flood; for it is said, 'that all flesh died that moved upon the earth, both of fowl and of cattle, and of every creeping thing that creepeth upon the earth, and every man.' To what end should there be not only a note of universality added, but such a particular enumeration of the several kinds of beasts, creeping things and fowls, if they were not all destroyed? To this I answer; I grant that, as far as the flood extended, all these were destroyed: but I see no reason to extend the destruction of these beyond that compass and space of the earth where men inhabited, because the punishment upon the beasts was occasioned by, and could not but be concomitant with, the destruction of man; but (the occasion of the deluge being the sin of man, who was punished in the beasts that were destroyed for his sake, as well as in himself) where the occasion was not, as where they were animals and no men, there seems no necessity of extending the flood thither.—But to what end, will it therefore be implied, did God command Noah, with so much care, to take all kinds of birds, beasts, and creeping things, into the ark with him, if all these living creatures were not destroyed by the flood? I answer, because all those things were destroyed wherever the flood was. Suppose then the whole continent of Asia was peopled before the flood, which is as much as in reason we may suppose; I say, all the living creatures in that continent were destroyed; or if we may suppose it to have extended over our whole continent of the ancient known world, what reason would there be, that in the opposite part of the globe, which we suppose to be unpeopled then, all the living creatures should there be destroyed, because men had sinned in this? and would there not have been on this supposition a sufficient reason to preserve living creatures in the ark for future propagation," &c.?

33.
A partial
deluge pro-
ved to be
impossible.

Thus we have the strength of all the arguments that have been offered in support of a partial deluge, and which may all be summed up in the three following articles: 1. The impossibility, in a natural way, of accounting for the quantity of water necessary to overflow the whole world; 2. The small number of mankind supposed at that time to have existed on the earth; and, 3. The inutility of an universal deluge, when the divine purposes could have been equally well answered by a partial one. But to all this we may make one general answer, that a partial deluge is in the nature of things impossible. We cannot imagine that the waters could accumulate upon any country without going off to the sea, while the latter retained its usual level; neither can we suppose any part of the sea to remain above the level of the rest. On the supposition of bishop Stillingfleet, therefore, that the deluge extended over the whole continent of Asia, we know that it must have covered the high mountains of Ararat, on which the ark rested; Caucasus, Taurus, &c. The height of Ararat is in-

determined, as no traveller of any credit pretends to have ascended to its top; but from the distance at which it is seen, we can scarce look upon it to be inferior to the most celebrated mountains of the old continent*. Sir John Chardin thinks that some part of Caucasus is higher; and supposing each of these to be only a mile and an half in height, the sea all round the globe must have been raised to the same height; and therefore all that could remain of dry ground as a shelter to animals of any kind, must have been the uninhabitable tops of some high mountains scattered at immense distances from one another. We may therefore with equal reason suppose, that these were in like manner covered, and that no living creature whatever could find shelter even for a moment: and it is certainly more agreeable to the character of the Deity to believe, that he would at once destroy animal life by suffocation in water, rather than allow numbers of them to collect themselves on the tops of mountains to perish with hunger and cold. It is besides very improbable, that any creature, whether bird or beast, could sustain a continued rain of 40 days and 40 nights, even without supposing them to have been absolutely immersed in water.

This consideration alone is sufficient to show, that if there was a deluge at all, it must have been universal with regard to the world as well as the human race; and the possibility of such a deluge by natural means has already been evinced. Under the article ANTEDILUVIANS it is shown, that, according to the most moderate computation, the world must have been vastly more full of people than at present. The least calculation there made indeed seems incredible; since, according to it, the world must have contained upwards of 68,719 times as many inhabitants as are at present to be met with in the empire of China, the most populous country in the world: but China bears a much larger proportion to the habitable part of the world than this. The violences exercised by mankind upon one another, have always been the means of thinning their numbers, and preventing the earth from being overstocked with inhabitants; and the strong expression in Scripture, that the "earth was filled with violence," shows that it must have gone to an extraordinary height. But though this violence must have undoubtedly thinned the old world of its inhabitants, it must likewise have dispersed some of them into distant regions. There is therefore no reason for supposing, that before the flood the human race were not driven into the remotest regions of the habitable world, or that America was destitute of inhabitants then more than it is at present. At any rate, the schemes of Vossius and Coetlogon, who would confine the whole race of mankind to a small part of Asia, must appear evidently futile and erroneous in the highest degree.

Some objections have been made to the doctrine of an universal deluge from the state of the continent of America, and the number of animals peculiar to that and other countries, which could not be supposed to travel to such a distance either to or from the ark of Noah. On this subject Bishop Stillingfleet observes, that the supposition of animals being propagated much farther in the world than mankind before the flood, seems very probable, "because the production of animals is parallel in Genesis with that of fishes, and both

Deluge.

*See Ararat.

34.
Objections
from some
species of
animals be-
ing peculiar
to certain
countries.
of

Deluge.

of them different from man. For God saith, Let the waters bring forth every moving creature that hath life, viz. fish and fowl: And accordingly it is said, that the waters brought forth abundantly every living creature after their kind, and every fowl after his kind. Accordingly, in the production of beasts, we read, 'Let the earth bring forth the living creature after his kind, cattle, and every creeping thing, and beast of the earth, after his kind: and it was so.' But in the production of man it is said, 'Let us make man in our image, and after our likeness.' From hence I observe this difference between the formation of animals and of man, that in one God gave a prolific power to the earth and waters for the production of the several living creatures which came from them, so that the seminal principles of them were contained in the matter out of which they were produced; which was otherwise in man, who was made by a peculiar hand of the great Creator himself, who thence is said to have formed man out of the dust of the ground.

"If now this supposition be embraced, by it we presently clear ourselves of many difficulties concerning the propagation of animals in the world, and their conservation in the ark; as how the unknown kind of serpent in Brazil, the flow-bellied creature in the Indies, and all those strange species of animals seen in the West Indies, should either come into the ark of Noah, or be conveyed out of it into those countries which are divided by so vast an ocean on one side, and at least so large a tract of land on the other. Besides, some kind of animals cannot live out of the climate where they are; and there are many sorts of animals discovered in America and the adjoining islands, which have left no remainders of themselves in these parts of the world. And it seems strange, that these should propagate into those parts of the world from the place of the flood, and leave none at all of their number behind them in these parts whence they were propagated."

To this Mr Cockburn, in his treatise on the deluge, replies, 1. That as it pleased God to create only one man and one woman at the beginning, and their posterity were sufficient to overspread the earth, it might well be supposed to be furnished with animals from an original pair of each. 2. On the supposition of many pairs of brute animals having been created originally, they must, when the human race were few in number, have multiplied to such a degree as to render the world uninhabitable. In confirmation of this, he informs us from the accounts of the Indian missionaries, that in the kingdom of Champua in the Indies, the river called by the natives *Tinacoreu*, but by the Portuguese *Varella*, goes up 80 leagues into the country to a mountain called *Moncalor*, above which it is much broader, but not so deep by far; there being banks of sand in some places, and lands overflowed with water, where there are an infinite number of fowls that cover all the country; inasmuch, that by reason of them the whole kingdom of Chintalcuhos had for 40 years been desolate, though it was eight days journey in length; which, at 30 miles a-day, made it 240 miles long. After passing this country, another was met with more wild, and full of great rocks; where there were a vast number of animals yet worse than the fowls, as elephants, rhinoceroses, lions, bears, buffaloes, and other beasts in such multitudes, that whatever men cultivated for the sup-

port of life was spoiled or destroyed by them, nor was it possible for the inhabitants to prevent it.

The Isle of France may be said to be the kingdom of rats. They come down from the mountains like an army, creep up the steepest rocks, march into the flat country, assemble in the marshy grounds, and bring desolation every where, especially in the night. Men can scarce sleep for them, and are obliged to roll themselves in such things as may best secure them from their bitings. It was the same in the Isle of Bourbon, which was as much infested with them at first, till it became more fully peopled. "We have good reason therefore (says Mr Cockburn) to conclude, that there was but one pair of animals created at first, that they might not increase too fast for mankind; and though they would multiply much more, and increase faster than men could do, they had room to spread themselves for a long time without much annoyance to man; and as men increased in number, and extended their habitations, they would be able to drive them further off, or defend themselves from their depredations." The same mode of reasoning is by our author made use of with regard to aquatic animals. The multitude of these indeed, however great, could be no detriment to man, who lived on land; but if we consider how large and numerous a spawn fishes cast at once, and in how short a time they multiply to immense numbers, he thinks it reasonable to conclude, that only one pair was created at once; and that the command to the waters to bring forth abundantly both fish and fowl, related only to the variety of species, not to a number of each.

3. Though at the restoration of the world it was to be repopled by six persons instead of two, and tho' at the same time animal food was given to man, yet Noah was commanded only to take a single pair of each of the animals, clean beasts, which are but few in number, only excepted. It is further observable, that notwithstanding this scanty supply of animals, they had increased so much by the time of Nimrod, that it then became necessary to hunt and destroy them; and Nimrod was celebrated for his courage and skill in that necessary employment. "So numerous (adds he) were the animals before the flood, though but two of a kind were created, that Dr Woodward, from the remains of that earth, as well the animal as vegetable productions of it still preserved, concludes, that 'at the time the deluge came, the earth was so loaded with herbage, and so thronged with animals, that such an expedient was even wanting to ease it of the burden, and to make room for a new succession of its productions.'"

4. Mr Cockburn is of opinion, that America must have been peopled before the flood, as the old continent could not be supposed able to hold the number of inhabitants.

5. With regard to the main difficulty, viz. how the animals peculiar to different countries could travel to such distances to and from the ark, Mr Cockburn replies, that America, which bishop Stillingfleet chiefly insists upon, has nothing peculiar to it, but what may equally well be urged both with respect to Asia and Africa; each of them having animals peculiar to themselves. It is also possible, that there might formerly be a more easy communication between the

Asiatic

Deluge.

37
Vast increase of the animal creation.

38
Of the peopling of America, and migration of animals to it.

35
Replies by Mr Cockburn.

36
Countries rendered uninhabitable by the abundance of brute creatures.

Deluge.

Asiatic and American continents than there is now. See the article AMERICA, n^o 101—113.

Our author likewise observes, that though the ark rested on mount Ararat, yet we are not told where it was built, which might be far enough from the place where it is commonly supposed; so that these animals which are peculiar to America might not have so far to travel to the ark as is commonly imagined. This argument, however, seems to be very inconclusive; for though we should suppose the ark to have been constructed in America itself, the animals of Mesopotamia would have had as far to travel from thence to America, as the American animals from their own country to Mesopotamia, according to the common opinion. But in whatever part of the earth Noah lived and the ark was built, it was at God's command that the several kinds of animals came thither in order to their preservation; and his command could bring them from the farthest parts of the earth during the 120 years that all the world lay under condemnation. Though after all, none of the animals might have very far to travel to the ark; for if only one pair of each kind was created at first, and all of these in or near one place, since they were all brought before Adam, and received names from him, there is no absurdity in supposing that some of every kind might remain in the country where they were first produced, from whence Noah's habitation might not be very distant. Neither can any objection be brought from the extinction of some species of animals in certain countries of the world, since they might have been hunted and destroyed either by the human race or by other creatures. Thus it is said, that there are now few or no deer in Switzerland, though formerly there were a great many when it was full of woods. In Britain also there are no wolves now to be found, though the island was infested with them in former times.

39
Of the subsistence of carnivorous animals in the ark.

In considering the subject of the deluge, among other questions which occur, one is, by what means were ravenous animals, which feed only upon flesh, supported in the ark? For this some authors have supposed, that Noah, besides those animals whom he took into the ark for preservation, took likewise a great number for slaughter. For this purpose bishop Wilkins has allowed no fewer than 1825 sheep, though he was of opinion, that there were no carnivorous animals before the flood; and this latter opinion is adopted by Mr Cockburn. The idea indeed of slaughtering a number of harmless animals to satisfy a few vile rapacious ones, and that too in a place designed for the common asylum of the animal creation, seems inconsistent with that scheme of mercy displayed in the whole transaction. It is by much the more probable supposition then, that though some animals had been accustomed to live on flesh in their natural state, they could nevertheless subsist upon vegetable food. This seems the more probable, as some animals naturally carnivorous, particularly dogs and cats, may be supported in their domestic state by vegetable food alone. If we extend this to the whole canine and feline genera, we shall take in most of the beasts of prey; as lions, tygers, leopards, panthers, wolves, foxes, hyenas, &c. Bears are well known sometimes to feed on berries; snakes will eat bread and milk; and there is no reason to suppose that even the most car-

N^o 99.

nivorous birds could not be kept alive by grain or other vegetable food. By thus excluding such a number of useless animals, a very considerable space will be allowed for the circulation of air in the ark, the want of which seems to be the most inexplicable difficulty, if we may judge from the present constitution of things. It seems indeed to be certain, that no equal number of animals could subsist for a twelvemonth in an equal space so closely shut up as they were. The ark, it is true, contained near two millions of cubic feet; but, considering the number of its inhabitants, the great space necessary for the food with which they were to be supplied, and the continual pollution of the air by their dung and filth, as well as the effluvia from their bodies, there seems little probability that even such a vast bulk of air could suffice for any length of time. This difficulty will appear the greater, when we consider that any ventilation was impossible, as this could not have been done without both opening the door and window; and the former, we are certain, was not opened until the time that the command was given to come forth out of the ark. Neither is there the smallest probability, that the opening of a single window could renew the air in such a manner as to make it fit for breathing throughout the whole extent of the ark. In this particular therefore, we must have recourse to the immediate interposition of Divine power, and suppose that the air was miraculously preserved of a sufficient degree of purity, as the garments of the Israelites were preserved from turning old, and their feet from being affected by the journey through the desert in which they wandered so long.—Many other questions concerning the economy of the ark might be proposed; as, how they supplied themselves with water? in what manner they could use fire for the dressing of their victuals? &c. But as every answer to these must be founded wholly upon conjecture, and none can pretend that there was a natural impossibility of effecting any of these things, we forbear to insist farther upon them. The case, however, is very different with respect to the air necessary for sustaining animal life; for here there is a plain impossibility in a natural way; nay, we may even doubt whether the general mass of atmosphere, after being deprived of its electric matter, or otherwise altered in such a manner as to let fall such a quantity of the water it contained, was fit for the support of animal life; so that a miracle would have been necessary at any rate. To this indeed it may be replied, that on such a supposition, men and other animals would have been destroyed, not by the flood, but by the vitiated air they breathed. But, as has been already hinted, it is improbable that any living creature could resist the violent rain which took place, and which would soon drive the birds from their shelter, as the waters beginning to overflow the ground would soon expel the human race from their houses; and it would not be till the end of the 40 days and 40 nights that the air could be at its worst state, long before which time all animal life would be extinct.

We shall conclude this article with considering some of the alterations which are supposed to have taken place in the world in consequence of the deluge. One of these is the much greater quantity of water on the

Deluge.

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Want of a proper circulation of air the greatest difficulty.

41
Changes which have taken place in consequence of the deluge.

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present than on the old world. Dr Keill has indeed endeavoured to prove, that the present extent of the surface of the waters is necessary to raise such a quantity of vapours as may supply the surface of the earth with rain and with springs. In answer to this, it is said, that it may be justly questioned whether all springs are derived from the vapours raised by the sun's heat? and, 2. Whether the primitive earth stood in need of such a quantity of rain to render it fertile as the present? Dr Woodward gives the following reason for supposing the antediluvian seas to have been nearly of the same extent with those at present, viz. that "the spoils of the sea, the shells and other marine bodies, are left in such prodigious numbers, and in heaps upon heaps in the earth, besides those which have long since perished, that they could not have been left in such quantities, had not the seas occupied much the same space as they do now." This argument, however, is thought by Mr Cockburn to be also inconclusive: "For (says he), 1. Animal food, whether fish or flesh, was not used by mankind before the deluge: but, 2. Suppose it had, yet for the first 500 years the number of mankind was but small, and likely at a great distance from the sea; so that the increase of all kinds of fish during so long a time must have been prodigious. We need not be surprised, then, at the immense quantities of the exuviae of marine animals left on the earth by the deluge. But the reason he brings to prove that the several continents of the world were encompassed by seas as they are now, viz. that as there are different sorts of fishes in the different seas of the world, so the exuviae of the same kind are generally found upon contiguous lands, does not always hold, since there are some shells found in the continent which are strangers to the parts of the sea conterminous to these continents. That the seas in the present earth are vastly more extended, and consequently the dry land so much less in proportion, may likewise be inferred from the great multitude of islands that lie near the shores of the greater continents, if it be true, what some alledge, that they are parts broken off by the deluge from the main land, which before that reached to and beyond them. And though islands are thought to be rarely found in the great ocean, yet there have of late been found in the midst of the Indian ocean vast clusters of islands, &c.

To all this it may be replied, That the Mosaic account says nothing of the extent of the seas either before or after the flood; but simply tells us, that the waters were poured out upon the surface of the earth from the windows of heaven and the fountains of the deep, and that as the flood decreased, the waters returned from off the face of the earth. If part of them returned, we have not the least reason to suppose that the whole did not do so likewise. That the fish, as well as land animals, were more numerous in the antediluvian world than now when such quantities are destroyed by mankind, is very probable, as we see they abound to this day in uninhabited places. This may account for the astonishing quantities of their exuviae to be met with in many different parts of the earth; but from the formation of islands nothing can be concluded concerning the antediluvian world. The late discoveries have shown that many islands have a volcanic origin; others are formed by the growth of

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coral; some by an accumulation of sea-weeds and other matters floating on the surface of the ocean, and detained upon sand banks or sunk rocks: while not a few of those near the great continents owe their origin to the quantities of mud brought down by the great rivers which empty themselves into the ocean. Authentic history scarce affords an instance of an island formed by the breaking off a piece from the continent, though it does many of islands being joined to continents by some one or other of the causes just mentioned.

The inferior fertility of the earth after the deluge is much insisted upon by the same author, for the following reasons: "1. The grant of animal food to Noah and his posterity; which he thinks is an indication of greater barrenness in the ground than formerly. 2. Our Saviour compares the days of Noah with those of Lot; and as the country about Sodom is said to have been exceedingly fertile like *the garden of the Lord*, he is of opinion that the antediluvian world must have been very fertile also. 3. As (according to Dr Woodward) the first earth brought forth all manner of plants of itself, without any labour or culture of man, and even before there was a man to till the ground, we may reasonably suppose that the exterior stratum or surface of the earth consisted of such terrestrial matter as was fit for these productions; that is, of a rich light mould, affording plentifully matter for vegetation. Now, though God was pleased, upon man's transgression, to withdraw in part his benediction from the earth; yet the earth itself was untouched till the deluge, the same surface of rich mould was still upon it, and brought forth plentifully, especially when man's culture for corn was added. But the inundation of waters at the deluge greatly altered the constitution of the earth itself; it mixed and confounded this upper stratum of vegetative earth with other terrestrial matter not fit for vegetation, with sand, gravel, stones, and all kinds of mineral matter, which must needs render the earth in general much less fertile than before, and which made the plough necessary to dig up the proper vegetative mould, and bring it to the surface, and also manure or compost to increase and enrich it; neither of which before the flood it needed. 4. There is a moral reason why the earth after the flood should be less fertile than before. The luxuriant productions of the first earth, after man's nature became corrupted, and to deviate more and more from righteousness, served only to excite and foment his lusts, and to minister plentiful fuel to his vices and luxury. To cut off, therefore, such occasion of sin and wickedness, God, in great mercy to men, retrenched the earth in its former fertility, thereby obliging them to labour and diligence, and employing most of their time to procure their necessary subsistence, which the earth by diligent culture will still afford, but not that luxuriant abundance it did before the flood. If we take a survey of the different regions and countries of the world, we shall find this to be the truth of the case. Some places, both in Asia and America, are as it were a paradise in respect of the rest, to show us perhaps what was and would have been the state of the earth had not man sinned; but far the greatest part is nothing to be compared to these, and evidently shows that effect which the sins of men had upon the earth,

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earth itself. In a word, if we take a survey of the whole, it cannot be thought that the first blessing was restored to the earth after the flood, or that it came out of the hands of its maker in the state it is at present, since so great a part of it bears still the marks of the curse laid upon it."

Notwithstanding all that is here alledged, the extraordinary fertility of the ancient earth must still appear very problematical, if we consider all circumstances. For,

1. Even at the creation, when the earth was at its utmost perfection, we cannot suppose that every part of it produced spontaneously like the garden of Eden. On the contrary, we are told that this garden was *planted by the Lord God*, and that Adam was put into it to *dress it* and to *keep it*. It appears, therefore, that even in the Paradisaical state the earth would not have produced food for man without culture; for as God *planted* the first garden, there can be no doubt that had man continued in his state of innocence and multiplied, he must have *planted* other gardens when it became necessary. After the fall, the fertility of the earth was expressly removed, and that not in a slight degree; but if we can judge from the present state of things, it must have become extremely wild and barren. Thus, when it is said, "Thorns also and thistles shall it bring forth to thee;" we may judge of the state of the soil from that which we see bringing forth thorns and thistles at this day. Every one knows that an abundant crop of these weeds indicates poor ground, which will require a great deal of cultivation to bring it into order. Nay, that we may be sure that the cultivation of the earth was at this time no easy matter, it is likewise said, "In sorrow shalt thou eat of it all the days of thy life." Hence it would appear, that the antediluvian earth, instead of being more fertile, was much more barren than at present. That the labour of cultivating the ground at that time was also so great as to be almost intolerable, is evident from the speech of Lamech on the birth of Noah: "This same (says he) shall comfort us concerning our work and toil of our hands, concerning the ground which the Lord hath cursed."

2. There is a very evident natural reason why the antediluvian world should have been more barren than the present, and why the deluge should have removed that barrenness. Under the article ANTEDILUVIANS, N^o 19. it is hinted, that the purity of the air at that time was a principal cause of the longevity of the human race. If this was really the case, which is very probable, we must suppose the atmosphere to have then contained a greater quantity of *dephlogisticated air* than it does at present; for late experiments have put it beyond doubt, that from this the support of animal life is immediately derived. But this kind of air, however favourable to animal life, is found to be very unfavourable to vegetation; and therefore, in proportion to its abundance in the antediluvian atmosphere, the animals will be healthy, and the vegetables weak, puny, and sickly. But the deluge, by overflowing the earth for a whole year, destroyed every animal and vegetable, and consequently induced a vast putrefaction all over the globe; the consequence of which was the production of an immense quantity of what is called *phlogisticated air*. This mixing with the pure atmo-

sphere, vitiated it to such a degree as to make it less friendly to animal life, but more so to vegetation. Hence the present world must naturally be more fertile than the former; and not only on this account, but by reason of its being manured by the stagnation of the waters upon its surface for a twelvemonth, and the immense quantity of animal matter left by them, the ground, instead of being lessened in its fertility, as Dr Woodward supposes, must have been restored, as far as we can judge, to the very state it was in at its original formation.

3. That this was really the case appears probable from what the Deity said to Noah after offering up his sacrifice. "I will not (says he) curse the ground any more for man's sake." Now this was plainly intimating that the earth was restored to its primitive fertility, and that he would no more take it away; for when he did so to the primitive world, it was in these words, "Cursed is the ground for thy sake." That the curse here alluded to was really the depriving the earth of its fertility, and not the overflowing the earth with water, is evident; because, after declaring that he would no more curse the ground for man's sake, he adds, "Neither will I again smite every living thing as I have done."

4. The moral reasons assigned why the present world should be less fertile than the former, seem to be inconclusive. However barren we may reckon the earth just now, it is certain that it produces, or might produce, much more than would suffice for all its inhabitants. The difficulties which mankind undergo are not at all owing to the barrenness of the earth, but to their own conduct, or their oppression of one another. Neither does it clearly appear that animal food is really in any degree cheaper than vegetable, but rather the contrary: so that whatever was the reason of this grant after the flood, we cannot fairly ascribe it to a foresight of the future barrenness of the earth.

Another question which naturally occurs on the subject of the deluge is, Whether there was any rain before it or not? The argument against the existence of rain before the flood, is obviously derived from the rainbow being made a symbol of the divine favour immediately after. It is certain, indeed, that unless we suppose the nature of light or of water to have been different before this event from what it was afterwards, there is a natural impossibility of the refraction of the sun's light being prevented from showing the appearance of a rainbow, whenever the sun and clouds were in a certain position with regard to one another. It appears improbable to those who take this side of the question, that the Deity should institute any thing as an emblem of his displeasure being turned away, when the same emblem had been seen perhaps a very short time before the catastrophe happened. On the other hand it is replied, that there is no absurdity in supposing this to have been the case: for though the rainbow existed before the deluge, yet it never was appointed to be the symbol of this particular event, viz. the reconciliation of the Deity; and the impossibility of vegetables being supplied with a sufficient quantity of moisture without rain, is likewise urged as a decisive argument. Still, however, it appears, that even vegetation may subsist, and that in its utmost perfection.

Deluge.

Demades
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Demetrius.

fection, without rain: for we are informed, that by means of a mist the ground was originally watered, and vegetables supplied with moisture, before there was any rain; and if this was the case at one time, it might have been at any other, or at any number of times we can suppose. Indeed, as matters stand at present, this would undoubtedly be a very scanty supply; and perhaps so it was in the antediluvian world: and thus the want of rain might have been one cause of that barrenness in the antediluvian world which we have already mentioned as probable, and which Mr Bryant mentions as the opinion of all the ancient mythologists.

DEMADES, a famous Athenian, who from being a mariner, became a great orator, and appeased Philip by his eloquence, after the famous victory over the Athenians at Cheronea, in the 338th year B. C.

DEMAIN, or DEMESNE, in law, is commonly understood to be the lord's chief manor place, with the lands thereto belonging, which he and his ancestors have, time out of mind, kept in their own manual occupation.

DEMAND, in its popular sense, denotes a calling for or requiring one's due.

DEMAND, in law, has a more special signification, as contradistinguished from *plaint*: for all civil actions are pursued either by demands or complaints; according to which the pursuer is called either *demandant* or *plaintiff*: viz. in real actions, *demandant*; and in personal actions, *plaintiff*. See PLAINTIFF.

DEMESNE. See DEMAIN.

DEMESNE LANDS. See REVENUE, n^o 5.

DEMETRIA, a festival in honour of Ceres, called by the Greeks *Demeter*. It was then customary for the votaries of the goddess to lash themselves with whips made with the bark of trees. The Athenians had a solemnity of the same name in honour of Demetrius Poliorcetes.

DEMETRIUS, a son of Antigonus and Stratonice, surnamed *Poliorcetes*, "Destroyer of towns." At the age of 22, he was sent by his father against Ptolemy, who invaded Syria. He was defeated near Gaza; but he soon repaired his loss by a victory over one of the generals of the enemy. He afterwards sailed with a fleet of 250 ships to Athens, and restored the Athenians to liberty, by freeing them from the power of Cassander and Ptolemy, and expelling the garrison, which was stationed there under Demetrius Phalereus. After this successful expedition, he besieged and took Munychia, and defeated Cassander at Thermopylae. His reception at Athens after these victories was attended with the greatest servility, and the Athenians were not ashamed to raise altars to him as to a god, and consult his oracles. This uncommon success raised the jealousy of the successors of Alexander and Seleucus Cassander, and Lyfimachus united to destroy Antigonus and his son. Their hostile armies met at Ipsus, 299 years before the Augustan age. Antigonus was killed in the battle; and Demetrius, after a severe loss, retired to Ephesus. His ill success raised him many enemies; and the Athenians, who had lately adored him as a god, refused to admit him into their city. He soon after ravaged the territory of Lyfimachus, and reconciled himself to Seleucus, to whom he gave his daughter Stratonice in marriage. Athens

now laboured under tyranny, and Demetrius relieved it and pardoned the inhabitants. The loss of his possessions in Asia recalled him from Greece, and he established himself on the throne of Macedonia by the murder of Alexander the son of Cassander. Here he was continually at war with the neighbouring states, and the superior power of his adversaries obliged him to leave Macedonia, after he had sat on the throne for seven years. He passed into Asia, and attacked some of the provinces of Lyfimachus, with various success; but famine and pestilence destroyed the greatest part of his army, and he retired to the court of Seleucus for support and assistance. He met with a kind reception: but hostilities were soon begun; and after he had gained some advantages over his son-in-law, Demetrius was totally forsaken by his troops in the field of battle, and became an easy prey to the enemy. Though he was kept in confinement by his son-in-law, yet he maintained himself like a prince, and passed his time in hunting and in every laborious exercise. His son Antigonus offered Seleucus all his possessions, and even his person, to procure his father's liberty; but all proved unavailing, and Demetrius died in the 54th year of his age, after a confinement of three years, 286 years before Christ. His remains were given to Antigonus, and honoured with a splendid funeral pomp at Corinth, and thence conveyed to Demetrias. His posterity remained in possession of the Macedonian throne till the age of Perseus, who was conquered by the Romans. Demetrius has rendered himself famous for his fondness of dissipation when among the dissolute, and for his love of virtue and military glory in the field of battle. He has been commended as a great warrior; and his ingenious inventions, his warlike engines, and stupendous machines in his war with the Rhodians, justify his claims to that character. He has been blamed for his voluptuous indulgences; and his biographer observes that no Grecian prince had more wives and concubines than Poliorcetes. His obedience and reverence to his father has been justly admired; and it has been observed, that Antigonus ordered the ambassadors of a foreign prince, particularly to remark the cordiality and friendship which subsisted between him and his son.

DEMETRIUS, surnamed *Gonatas*, succeeded his father Antigonus on the throne of Macedonia. He reigned 12 years, and was succeeded by his son Philip.

DEMETRIUS, a son of Philip king of Macedonia, delivered as an hostage to the Romans. His modesty delivered his father from a heavy accusation laid before the Roman senate. When he returned to Macedonia, he was falsely accused by his brother Perseus, who was jealous of his popularity, and his father too credulously consented to his death.

DEMETRIUS I. surnamed *Soter* or *Saviour*, was son of Seleucus Philopator, the son of Antiochus the Great, king of Syria. His father gave him as a hostage to the Romans. After the death of Seleucus, Antiochus Epiphanes, the deceased monarch's brother, usurped the kingdom of Syria, and was succeeded by his son Antiochus Eupator. This usurpation displeased Demetrius, who was detained at Rome. He procured his liberty on pretence of going to hunt, and fled to Syria, where the troops received him as their lawful sovereign.

Demetrius, sovereign. He put to death Eupator and Lyfias, and established himself on his throne by cruelty and oppression. Alexander Bala, the son of Antiochus Epiphanes, laid claims upon the crown of Syria, and defeated Demetrius in a battle, 250 years before Christ.

DEMETRIUS II. surnamed *Nicator*, or *conqueror*, was son of Soter, to whom he succeeded by the assistance of Ptolemy Philometor. He married Cleopatra, the daughter of Ptolemy, who was before the wife of the expelled monarch Alexander Bala. Demetrius gave himself up to luxury and voluptuousness, and suffered his kingdom to be governed by his favourites. At that time a pretended son of Bala, called *Diodorus Tryphon*, seized a part of Syria; and Demetrius, to oppose his antagonist, made an alliance with the Jews, and marched into the east, where he was taken by the Parthians. Phraates king of Parthia gave him his daughter Rodogyne in marriage; and Cleopatra was so incensed at this new connection, that she gave herself up to Antiochus Sidetes her brother-in-law, and married him. Sidetes was killed in a battle against the Parthians, and Demetrius regained the possession of his kingdom. His pride and oppression rendered him odious; and his subjects asked a king of the house of Seleucus from Ptolemy Physcon king of Egypt: and Demetrius, unable to resist the power of his enemies, fled to Ptolemais, which was then in the hands of his wife Cleopatra. The gates were shut up against his approach by Cleopatra; and he was killed by order of the governor of Tyre, whither he had fled for protection, A. U. C. 627. He was succeeded by Alexander Zebina, whom Ptolemy had raised to the throne.

DEMETRIUS Phalereus, a celebrated orator and peripatetic philosopher, was the scholar of Theophrastus. He acquired so much authority at Athens, that he governed the city for ten years; and ruled with so much wisdom and virtue, that they set up 36 statues in honour of him. By the slanders of some malicious persons in his absence, he was, however, condemned to die; and his images were pulled down: which when Demetrius heard, he said, they could not pull down that virtue for which those images were set up. He escaped into Egypt, and was protected by Ptolemy Lagus. This king, it is said, asked his advice concerning the succession of his children to the throne; viz. whether he ought to prefer those he had by Eurydice to Ptolemy Philadelphus, whom he had by Berenice; and Demetrius advised him to leave his crown to the former. This displeased Philadelphus so much, that, his father being dead, he banished Demetrius; who was afterwards killed by the bite of an asp. Demetrius composed more works in prose and verse than any other peripatetic of his time; and his writings consisted of poetry, history, politics, rhetoric, harangues, and embassies. None of them are extant except his rhetoric, which is usually printed among the *Rhetores Selecti*.

DEMETRIUS, a cynic philosopher, disciple of Apollonius Tyaneus, in the age of Caligula. The emperor wished to gain the philosopher to his interest by a large present; but Demetrius refused it with indignation, and said, If Caligula wishes to bribe me, let him send me his crown. Vespasian was displeased with his insolence, and banished him to an island. The cynic derided the punishment, and bitterly inveighed against

the emperor. He died in a great old age; and Seneca observes, that "nature had brought him forth to show mankind that an exalted genius can live securely, without being corrupted by the vices of the world."

DEMI (formed from *dimidium*), a word used in composition with other words to signify *half*.

DEMI-Attici, boroughs or larger villages of Attica. The Athenian tribes were distributed into Demi. Homer, in his catalogue, distinguishes the Athenians by the appellation *Demos*. And when Theseus prevailed on them to quit the country and settle at Athens, they still continued to frequent the Demi, and to perform their several religious ceremonies there.

DEMI-Culverin, a piece of ordnance usually $4\frac{1}{2}$ inches bore, 2700 pounds weight, 10 feet long, and carrying point blank 175 paces. A Demi-Culverin of the least size, is $4\frac{1}{4}$ inches bore, 10 feet long, and 2000 pounds weight. It carries a ball of 4 inches diameter and of 9 pounds weight, and its level range is 174 paces. A Demi-Culverin of the largest sort, is $4\frac{3}{4}$ inches bore, $10\frac{1}{2}$ feet long, and weighs 3000 pounds weight. It carries a ball $4\frac{1}{2}$ inches diameter, weighing 12 pounds 11 ounces, point blank 178 paces.

DEMI-God. See **HERO**.

DEMI-Gorge, in fortification, is that part of the polygon which remains after the flank is raised, and goes from the curtain to the angle of the polygon. It is half of the vacant space or entrance into a bastion.

DEMI-Quaver, a note in music, two of which are equal to a quaver.

DEMI-Semi-Quaver, in music, the shortest note, two of them being equal to a semi-quaver.

DEMISE, in law, is applied to an estate either in fee-simple, fee-tail, or for a term of life or years; and so it is commonly taken in many writs. The king's death is in law termed the demise of the king.

DEMISE, and **REDEMISE**, denote a conveyance where there are mutual leases made from one to another of the same land, or something out of it.

DEMIURGE (from *δημιος*, which denotes a *public servant*, and *εργον* *work*), in the mythology of the eastern philosophers, was one of the *Æons* employed by the supreme Deity in the creation of the world. The character they give him is a compound of shining qualities and insupportable arrogance; and his excessive lust of empire effaces his talents and virtues. He is represented as claiming dominion over the new world he has formed, as his sovereign right; and excluding totally the supreme Deity from all concernment in it, he demands from mankind, for himself and his associates, divine honours.

DEMOCRACY, from *δημος* *people*, and *κρατος* *to command or govern*; the same with a popular government, wherein the supreme power is lodged in the hands of the people: such were Rome and Athens of old; but as to our modern republics, Basil only accepted, their government comes nearer to aristocracy than democracy. See **LAW**, No. 14.

DEMOCRITUS, one of the greatest philosophers of antiquity, was born at Abdera, a town of Thrace, about the 80th Olympiad; that is about 460 years before Christ. His father, says Valerius Maximus, was able to entertain the army of Xerxes; and Diogenes Laertius adds, upon the testimony of Herodotus, that

Demi
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Democritus

Demoivre.

that the king, in requital, presented him with some Magi and Chaldeans. From these Magi and Chaldeans Democritus received the first part of his education; and from them, whilst yet a boy, he learned theology and astronomy. He next applied to Leucippus, and learned from him the system of atoms and a vacuum. His father dying, the three sons, for so many there were, divided the estate. Democritus made choice of that part which consisted in money, as being, though the least share, the most convenient for travelling; and it is said, that his portion amounted to above 100 talents, which is near 20,000l. Sterling. His extraordinary inclination for the sciences and for knowledge, induced him to travel into all parts of the world where he hoped to find learned men. He went to visit the priests of Egypt, from whom he learned geometry; he consulted the Chaldeans and the Persian philosophers; and it is said, that he penetrated even into India and Ethiopia, to confer with the Gymnosophists. In these travels he wasted his substance; after which, at his return, he was obliged to be maintained by his brother; and if he had not given proofs of the greatest understanding, and thereby procured to himself the highest honours, and the strongest interest of his country, he would have incurred the penalty of that law which denied the interment in the family-sepulchre to those who had spent their patrimony. After his return from travelling, he lived at Abdera, and governed there in a most absolute manner, by virtue of his consummate wisdom. The magistrates of that city made him a present of 500 talents, and erected statues to him even in his lifetime: but being naturally more inclined to contemplation than delighted with public honours and employments, he withdrew into solitude and retirement. Democritus incessantly laughed at human life, as a continued farce, which made the inhabitants of Abdera think he was mad; on which they sent for Hippocrates to cure him: but that celebrated physician having discoursed with the philosopher, told the Abderians, that he had a great veneration for Democritus; and that, in his opinion, those who esteemed themselves the most healthy were the most distempered. Democritus died, according to Diogenes Laertius, in the 361st year before the Christian era, aged 109. It is said that he put out his eyes, in order that he might meditate more profoundly on philosophical subjects; but this has little probability. He was the author of many books, which are lost; and from these Epicurus borrowed his philosophy.

DEMOIVRE (ABRAHAM), an eminent mathematician, was born at Vitri in Champagne, May 1667. The revocation of the edict of Nantz, in 1685, determined him to fly into England, sooner than abandon the religion of his fathers. He laid the foundation of his mathematical studies in France, and perfected himself at London; where a mediocrity of fortune obliged him to employ his talents in this way, and to read public lectures for his better support. The *Principia Mathematica* of Newton, which chance is said to have thrown in his way, made him comprehend at once, how little he had advanced in the science he professed. He fell hard to work: he succeeded as he went along; and he soon became connected with, and celebrated among, the first-rate mathematicians. His eminence and abilities soon opened to him an entrance into the Royal Society of London, and afterwards into the Academy of Sciences at Paris. His merit was so known

and acknowledged by the former, that they judged him a fit person to decide the famous contest between Newton and Leibnitz. The collection of the academy of Paris contains no memoir of this author, who died at London Nov. 1754, soon after his admission into it; but the Philosophical Transactions of London have several, and all of them interesting. He published also some capital works, such as, *Miscellanea Analytica, de seriebus & quadraturis*, &c. 1730, 4to. But perhaps he has been more generally known by his "Doctrine of Chances; or, Method of calculating the Probabilities of Events at Play." This work was first printed, 1718, in 4to, and dedicated to Sir Isaac Newton: it was reprinted, 1738, with great alterations and improvements; and a third edition was afterwards published with additions, and "A Treatise on Annuities," dedicated to lord Carpenter.

DEMONSTRABLE, a term used in the schools to signify that a thing may be clearly proved. Thus, it is demonstrable, that the three angles of a triangle are equal to two right ones.

DEMONSTRATION, in logic, a series of syllogisms, all whose premises are either definitions, self-evident truths, or propositions already established. See Logic.

DEMONSTRATIVE, in grammar, a term given to such pronouns as serve to indicate or point out a thing. Of this number are *hic hæc hoc*, among the Latins; and *this, that, these, those*, in English.

DEMOSTHENES, the famous Athenian orator, was born at Athens 381 B. C. He lost his father at seven years of age; and was placed under the conduct of guardians, who robbed him of his substance, and neglected his education. Demosthenes repaired this loss by his love of eloquence and his extraordinary abilities. He became the disciple of Isæus and Plato, and applied himself to study the orations of Isocrates. At the age of 17 he gave an early proof of his eloquence and abilities against his guardians, from whom he obtained the retribution of the greatest part of his estate. His rising talents were, however, impeded by various natural defects. But these were at last conquered by dint of resolution and unwearied attention. He declaimed by the sea-shore, that he might be used to the noise of a tumultuous assembly; and with pebbles in his mouth, that he might correct a defect in his speech. He practised at home with a naked sword hanging over his shoulder, that he might check an ungraceful motion to which he was subject. He also confined himself in a subterraneous cave, to devote himself more closely to studious pursuits; and to eradicate all curiosity of appearing in public, he shaved one half of his head. In this solitary retirement, by the help of a glimmering lamp, he composed the greatest part of his orations, which have ever been the admiration of every age; though his contemporaries and rivals inveighed against them, and observed that they smelt of oil. His abilities as an orator raised him to consequence at Athens, and he was soon placed at the head of government. In this public capacity he roused his countrymen from their indolence, and animated them against the encroachment of Philip of Macedonia. In the battle of Cheronæa, Demosthenes betrayed his pusillanimity, and saved his life by flight. After the death of Philip, he declared himself warmly against his son and successor Alexander; and when the Macedonians de-

Demon-
strable,
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Demost-
henes.

Demosthenes.

demanding of the Athenians their orators, Demosthenes reminded his countrymen of the fable of the sheep, which delivered their dogs to the wolves. By the prevalence of party, however, he was forced to retire from Athens; and in his banishment, which he passed at Trœzen and Ægina, he lived with more effeminacy than true heroism. When Antipater made war against Greece after the death of Alexander, Demosthenes was publicly recalled from his exile, and a galley was sent to fetch him from Ægina. His return was attended with much splendor, and all the citizens crowded at the Piræus to see him land. His triumph and popularity were short. Antipater and Craterus were near Athens, and demanded all the orators to be delivered up into their hands. Demosthenes fled to the temple of Neptune in Calauria; and when he saw that all hopes of safety were vanished, he took a dose of poison, which he always carried in a quill, and expired on the day that the Thesmophoria were celebrated, 322 years before Christ. The Athenians raised a brazen statue to his honour, with an inscription translated into this distich:

*Si tibi par menti robur, Vir magne, fuisset,
Græcia non Macedo succubisset hero.*

Demosthenes has been deservedly called *the prince of orators*. Indeed no orator had ever a finer field than Demosthenes in his Olynthiacs and Philippics, which are his capital orations; and undoubtedly to the greatness of the subject, and to that integrity and public spirit which breathe in them, they owe a large portion of their merit. The subject is, to excite the indignation of his countrymen against Philip of Macedon, the public enemy of the liberties of Greece; and to guard them against the treacherous measures by which that crafty tyrant endeavoured to lull them into a neglect of their danger. To attain this end, we see him use every proper means to animate a people distinguished by justice, humanity, and valour, but in many instances become corrupt and degenerate. He boldly accuses them of venality, indolence, and indifference to the public good; while, at the same time, he reminds them of their former glory, and of their present resources. His contemporary orators, who were bribed by Philip, and who persuaded the people to peace, he openly reproaches as traitors to their country. He not only prompts to vigorous measures, but teaches how they are to be carried into execution. His orations are strongly animated, and full of the impetuosity and ardour of public spirit. His composition is not distinguished by ornament and splendour. It is an energy of thought, peculiarly his own, which forms his character, and raises him above his species. He seems not to attend to words, but to things. We forget the orator, and think of the subject. He has no parade and ostentation, no studied introductions: but is like a man full of his subject; who, after preparing his audience by a sentence or two for the reception of plain truths, enters directly on business.

The style of Demosthenes is strong and concise; though sometimes, it must be confessed, harsh and abrupt. His words are highly expressive, and his arrangement firm and manly. Negligent of lesser graces, he seems to have aimed at that sublime which lies in sentiment. His action and pronunciation are said to have been uncommonly vehement and ardent; which,

from the manner of his writings, we should readily believe. His character appears to have been of the austere rather than of a gentle kind. He is always grave, serious, passionate; never degrading himself, nor attempting any thing like pleasantry. If his admirable eloquence be in any respect faulty, it is that he sometimes borders on the hard and dry. He may be thought to want smoothness and grace; which is attributed to his imitating too closely the manner of Thucydides, who was his great model for style, and whose history he is said to have transcribed eight times with his own hand. But these defects are more than atoned for by that masterly force of masculine eloquence, which, as it overpowered all who heard it, cannot in the present day be read without emotion.

CICERO calls him a perfect model, and such as he himself wished to be. These two great princes of eloquence have been often compared together; but the judgment hesitates to which to give the preference. The Archbishop of Cambray, however, seems to have stated their merits with great justice and perspicuity in his *Reflections on Rhetoric and Poetry*. The passage, translated, is as follows: "I do not hesitate to declare that I think Demosthenes superior to Cicero. I am persuaded no one can admire Cicero more than I do. He adorns whatever he attempts. He does honour to language. He disposes of words in a manner peculiar to himself. His style has great variety of character. Whenever he pleases, he is even concise and vehement; for instance, against Catiline, against Verres, against Antony. But ornament is too visible in his writings. His art is wonderful, but it is perceived. When the orator is providing for the safety of the republic, he forgets not himself, nor permits others to forget him. Demosthenes seems to escape from himself, and to see nothing but his country. He seeks not elegance of expression; unsought for he possesses it. He is superior to admiration. He makes use of language, as a modest man does of dress, only to cover him. He thunders, he lightens. He is a torrent which carries every thing before it. We cannot criticise, because we are not ourselves. His subject enchains our attention, and makes us forget his language. We lose him from our sight: Philip alone occupies our minds. I am delighted with both these orators; but I confess that I am less affected by the infinite art and magnificent eloquence of Cicero, than by the rapid simplicity of Demosthenes."

DEMPSTER (Thomas), a very learned man, but of a singular character. He was born in Scotland, but we do not find in what year. He went over to France for the sake of embracing the Catholic religion, and taught classical learning at Paris about the beginning of the 17th century. Tho' his business was to teach school, yet he was as ready to draw his sword, and as quarrelsome as if he had been a duelist by profession; and it is said, that there scarce passed a day but he had something or other of this kind upon his hands. This spirit and turn of temper drew him into many scrapes; and one in particular, which obliged him to quit the country. Grangier, principal of the college of Beauvais at Paris, being obliged to take a journey, appointed Dempster his substitute. Dempster caused whip a scholar, in full school, for challenging one of his fellows to fight a duel. The scholar, to revenge this affront, brought three gentlemen of his relations, who were

Demosthenes,
Dempster.

Dempster
||
Denbigh.

were of the king's life-guards, into the college. Dempster made the whole college take arms; hamstringed the three life-guard-men's horses before the college gate; and put himself into such a posture of defence, that the three sparks were forced to ask for quarter. He gave them their lives; but imprisoned them, and did not release them for some days. They sought another way to revenge themselves: they caused an information to be made of the life and moral behaviour of Dempster, and got some witnesses to be heard against him. Upon this he went over to England, where he found refuge; but did not make any long stay. He went abroad again, and read lectures upon polite learning in several universities; in that of Nîmes particularly, where he disputed for a professor's chair, and obtained it. He went to Bologna, and was professor there for the remainder of his life; and was then also admitted a member of the Academy della Rotte. He died there in September 1625, leaving behind him several learned works; as Commentaries on *Rosinus de Antiquitatibus Romanorum*, and upon Claudian, &c.; four books of Epistles; several dramatic pieces, and other poems; some books of law; an Apparatus to the History of Scotland; a Martyrology of Scotland; and a List of the Scottish Writers.

DEMPSTER of Court, the name formerly given in Scotland to the common executioner or hangman.

DEMSTER, or DEEMSTER. See DEEMSTER.

DEMULCENTS, among physicians, medicines good against acrimonious humours. Such are the roots of marsh-mallows, of white lillies, of liquorice, and of viper-grass, the five emollient herbs, &c.

DEMURRAGE, in commerce, an allowance made to the master of a ship by the merchants, for staying in a port longer than the time first appointed for his departure.

DEMURRER, in law, a stop put to any action upon some point of difficulty which must be determined by the court, before any further proceedings can be had in the suit.

DEN, a syllable which, added to the names of places, shows them to be situated in valleys or near woods; as Tenterden.

DENARIUS, in Roman antiquity, the chief silver coin among the Romans, worth in our money about sevenpence three farthings. As a weight, it was the seventh part of a Roman ounce.

DENARIUS is also used in our law-books for an English penny.

DENBIGHSHIRE, a county of Wales, bounded on the south by Merioneth and Montgomery shires, on the north by Flintshire and the Irish Sea, on the west by Caernarvon and part of Merionethshire. It is about 40 miles long and 21 broad. The air is wholesome, but sharp, the county being pretty hilly, and the snow lying long on the tops of the mountains. The soil in general is barren: but the vale of Clwyd, so called from its being watered by that river, is a very fertile pleasant spot of great extent, and well inhabited. The chief commodities are black cattle, sheep, and goats, rye, called here *amlecorn*, and lead-ore. The county sends two members to parliament, viz. a knight for the shire, and a burgess for Denbigh the capital.

DENBIGH, the capital town of Denbighshire in N. Wales. It is seated on the side of a rocky hill, on a

branch of the river Clwyd, and was formerly a place of great strength, with an impregnable castle, now demolished. It is pretty large, well built, and inhabited by tanners and glovers, and gives the title of Earl to the noble family of Fielding. W. Long. 3. 30. N. Lat. 53. 15.

DENDERMOND, a handsome and strong town of the Austrian Netherlands, in Flanders, with a strong citadel. It was taken by the allies in 1706, and by the French in 1745. It is surrounded by marshes and fine meadows, which the inhabitants can lay under water when they please. It is seated at the confluence of the Dender and Schelde. E. Long. 4. 3. N. Lat. 51. 3.

DENDRACHATES, in natural history, the name used by the ancients for an extremely elegant and beautiful species of agate, the ground of which is whitish, variegated with veins of a brighter white. These veins are beautifully disposed in a number of various figures; but generally in many concentric irregular circles, drawn round one or more points. It is common also, in various parts of this stone, to find very beautiful delineations of trees, mosses, sea-plants, and the like, so elegantly expressed, that many have erroneously taken them for real plants included in the substance of the stone; whence the name *dendrachates*.

DENDROMETER (from *δενδρον* a tree, and *μετρο* I measure), an instrument lately invented by Messrs Duncombe and Whittel, for which they obtained a patent, so called from its use in measuring trees. This instrument consists of a semicircle A, divided into two quadrants, and graduated from the middle; upon the diameter B there hangs a plummet L for fixing the instrument in a vertical position; there is also a chord D parallel to the diameter, and a radius E, passing at right angles through the diameter and chord. From a point on the radius hangs an altimeter C, between the chord and diameter, to which is fixed a small semicircle G, and a screw, to confine it in any position. The altimeter, which is contrived to form the same angle with the radius of the instrument as the tree forms with the horizon, is divided from its centre both ways into forty equal parts: and these parts are again subdivided into halves and quarters. Upon the small semicircle G, on which is accounted the quantity of the angle made by the altimeter and radius, are expressed degrees from 60 to 120, being 30 on each quadrant. The radius is numbered with the same scale of divisions as the altimeter. There is also a nonius to the small semicircle, which shows the quantity of an angle to every five minutes. On the back of the instrument the stock M of the sliding piece is confined to the axis N, which moves concentrically parallel to the elevation index F on the opposite side, to which it is fixed. This index is numbered by a scale of equal divisions with the altimeter and radius: at the end of the index is a nonius, by which the angles of elevation above, or of depression below, the horizon, measured upon the semicircle of the instrument, are determined to every five minutes. There is also a groove in the radius, that slides across the axis by means of a screw I, working between the chord and semicircle of the instrument; and this screw is turned by the key O. Upon the stock M is a sliding piece P, that always acts at right angles with the altimeter, by means of a groove in the latter. To the shank of the sliding piece

Dender-
mond
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Dendrome-
ter.

Plate
CLXV.

Dendrome-
ter.

piece is affixed a moveable limb Q, which forms the same angle with the altimeter as the bough forms with the body or trunk of the tree. This limb may be of any convenient length, divided into equal parts of the same scale with all the foregoing divisions. At the extremity of the fixed axis, on a centre, an index R, with telescopic sights, works horizontally upon the moveable limb of the sliding piece. Upon this horizontal index R may be fixed a small quadrant T, described with any convenient radius from the centre on which the index moves, and divided into 90 degrees, beginning at a right line drawn from the centre at right angles with the fiducial edge of the said index; and upon the extremity of the axis is a nonius, whereby to determine the quantity of an angle upon the quadrant every five minutes. There are also two small circular arches S, S, serving to keep the sights in a parallel position, each containing an equal number of degrees. Upon these arches is measured the angle, subtending a side equal to the difference of the altitudes of the observed objects above the plane of the horizon, and whose base is the nearest distance between the perpendiculars in which these objects are situated. The dendrometer is fitted to a theodolite, and may be used either with or without it as occasion requires.

The principal use of this instrument is for measuring the length and diameter of any tree, perpendicular or oblique, to an horizontal plane, or in any situation of the plane on which it rests, or of any figure, whether regular or irregular, and also the length and diameter of the boughs, by mere inspection; and the inventors of it have calculated tables, annexed to their account of the instrument itself, by the help of which the quantity of timber in a tree is obtained without calculation, or the use of the sliding rule. The instrument is rectified by setting it in a perpendicular position, by means of the plummet, and screwing it to the staff; then the altimeter is placed in the exact position of the tree, whether perpendicular, reclining, or inclining, and screwed fast. If the tree stands on level ground, the horizontal distance from the tree to the axis of the instrument is measured with a tape-line, and the radius is moved with the key till that distance be cut upon it by the inside of the diameter: but if the ground be slanting, the distance from the tree to the instrument is measured, and the elevation index is moved till the point of the tree from which the distance was measured is seen through the sights, and there screwed fast; and the radius is moved backwards or forwards with the key, till this distance is cut upon the elevation index by the perpendicular line of the altimeter; and the horizontal line will be marked upon the radius by the inside of the diameter. In order to obtain the length of the tree, the elevation index is first moved downwards, till the bottom of the tree cut by the horizontal wires is observed through the sights, and the feet and inches marked by the index upon the altimeter below the point of sight or horizontal line are noted down: then the index is moved upwards till the part to which you would measure, cut by the horizontal wires, is seen, and the feet and inches marked on the altimeter above the point of sight are noted: these two quantities added together give the exact length of the tree, which is inserted in a field-book. For the girth of the tree, the circumference

in that part where the horizontal distance was taken, is measured with the tape-line; and a sixth part of this circumference is added to the distance on the radius, which was before cut by the inside of the diameter, because the tape-line, in taking the distance, cannot be applied to the centre of the body of the tree; then the elevation index is lowered to that part of the tree, of which the diameter is to be taken and screwed fast. Set the moveable limb of the sliding piece quite straight, and the edge of the horizontal index upon the first division of it. Turn the whole instrument about to the left hand till you see through the sights the left side of the tree cut exactly by the perpendicular wires; then the instrument being fixed, move the sights only upon the sliding piece, till you see the right side of the tree cut also by the perpendicular wires; and you will find the true diameter marked by the horizontal index upon the sliding piece, which is to be entered in a distinct column of the field-book.

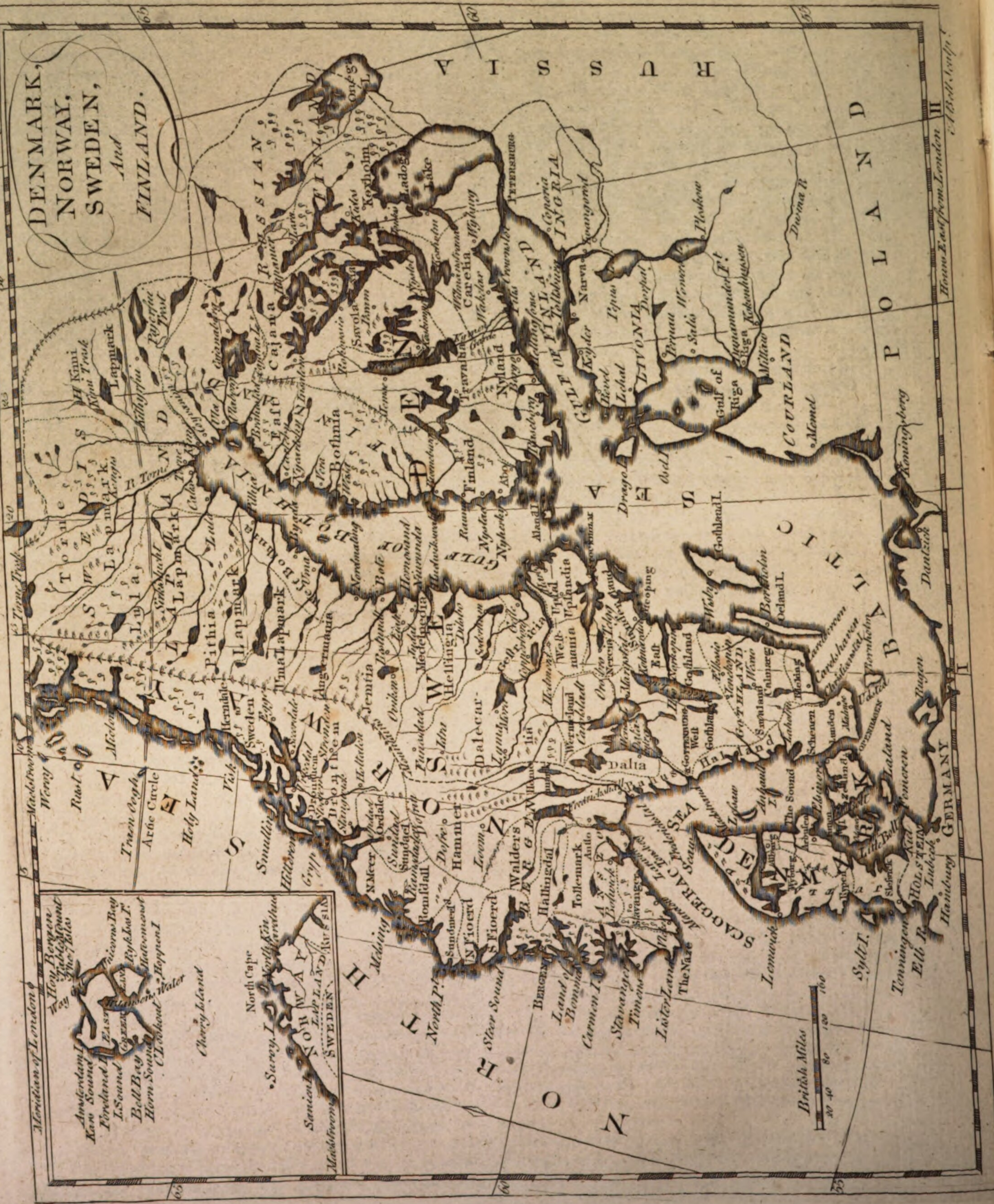
For the boughs: let the distance on the radius be now reduced to its former quantity, and the elevation index moved upwards till the bough is seen through the sights and screwed fast. Set the moveable part of the sliding piece in a position parallel to the bough, and the edge of the horizontal index on the first division of it. Turn the whole instrument about till you see through the sights the shoot of the bough close to the trunk cut by the perpendicular wires; then move the sights till you see the other end of the bough cut by the said wires, and note the feet and inches marked by the horizontal index on the moveable limb of the sliding piece, which will give the true length of the bough to be inserted in the field-book. And the girth of the bough may be obtained by directing the sights to that part of it whose girth is desired; then by moving the elevation index downwards till you see the under side of the bough cut by the horizontal wires, and there noting the feet and inches marked by the said index on the altimeter; after which, let the elevation index be moved upwards, till the upper side of the bough cut by the horizontal wires is seen; the feet and inches marked upon the altimeter are to be noted as before. The former quantity subtracted from the latter will give the true diameter of the bough, which is entered in the field-book. The true solidity both of the body of the tree and of the boughs may be found from the diameter and lengths in tables calculated for this purpose.

The dendrometer, fitted to a theodolite, may be applied to measuring the heights and distances of objects, accessible or inaccessible, whether situated in planes parallel or oblique to the plane in which the instrument is placed. It may be also used for taking all angles, whether vertical, horizontal, or oblique, in any position of the planes in which they are formed; and thus for facilitating the practical operations of engineering, land surveying, levelling, mining, &c. and for performing the various cases of plane trigonometry without calculation; of which the inventors have subjoined to their account of this instrument many examples.

DENDROPHORIA, in antiquity, the carrying of boughs or branches of trees; a religious ceremony so called, because certain priests called from thence

dendrophori,

DENMARK,
NORWAY,
SWEDEN,
And
FINLAND.



Deneb
||
Denmark.

dendrophori, tree-bearers, marched in procession, carrying the branches of trees in their hands in honour of some god, as Bacchus, Cybele, Sylvanus, &c. The college of the *dendrophori* is often mentioned in ancient marbles; and we frequently see in basso relievos the bacchanals represented as men carrying little shrubs or branches of trees.

DENEb, an Arabic term signifying *tail*, used by astronomers to denote several fixed stars. Thus, *deneb eleet*, signifies the bright star in the lion's tail. *Deneb adigege*, that in the swan's tail.

DENHAM (Sir John), an eminent English poet, the only son of Sir John Denham, chief baron of the exchequer in Ireland, and one of the lords commissioners there, was born in Dublin in 1615; but his father, in 1617, being made a baron of the exchequer in England, he received his education in that country. In his youth he followed gaming more than any thing else; but, in 1641, published a tragedy called the *Sophy*, which was much admired by the best judges; and, in 1643, wrote his famous poem called *Cooper's Hill*, which Mr Dryden pronounces will ever be the standard of good writing for majesty of style. Denham was sent ambassador from Charles II. to the king of Poland; and at the Restoration was made surveyor-general of his majesty's buildings, and created knight of the Bath. On obtaining this post, he is said to have renounced his poetry for more important studies; though he afterwards wrote a fine copy of verses on the death of Cowley. He died at his office in Whitehall in 1668; and his works have been often since printed.

DENIER, a small French copper coin, of which twelve make a sol.

There are two kinds of deniers, the one tournois, the other paris, whereof the latter was worth a fourth part more than the former.

DENIZEN, in law, an alien made a subject by the king's letters-patent; otherwise called *donaisson*, because "his legitimation proceeds *ex donatione regis*, from the king's gift."

A denizen is in a kind of middle state between an alien and a natural born subject, and partakes of both of them. He may take lands by purchase or devise, which an alien may not; but cannot take by inheritance; for his parent, through whom he must claim, being an alien, had no inheritable blood, and therefore could convey none to the son; and, upon a like defect of blood, the issue of a denizen born before denization, cannot inherit to him; but his issue born after may. A denizen is not excused from paying the alien's duty, and some other mercantile burdens. And no denizen can be of the privy council, or either house of parliament, or have any office of trust civil or military, or be capable of any grant of lands, &c. from the crown.

DENMARK, one of the most ancient monarchies in Europe, comprehending the peninsula of Jutland, and the islands of Zealand, Tunen, &c. But Denmark, properly so called, is only that part of Scandinavia which formerly went by the name of *Cimbrica Chersonesus*, and now is called *Jutland*. Including Holstein, it is bounded by the sea called the *Categate* on the north; by the Baltic on the east: by the river Elbe, which separates it from Bremen, on the south; and by

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the duchy of Saxe-Lowenburg towards the south-east; Denmark, extending from 54. 40. to 58. 20. N. Lat.

The origin of the name *Denmark* is very uncertain. The most probable conjecture concerning it is that of *Saxo-Grammaticus*, the most ancient and best Danish historian. He derives it from *Dan* the son of *Humble*, the first king, and *Mark*, or *Marc*, signifying a country in several dialects of the Teutonic; according to which etymology, the word *Denmark* signifies the land or country of *Dan*.—This *Dan* is thought to have lived about 1038 years before the Christian era. Almost all historians agree that he was the son of *Humble*, a native of Zealand. His possessions and influence were very considerable, not only in Zealand, but in the islands of Langland and Mona. It was his courage, however, and skill in the art of war, that induced the inhabitants of Denmark to choose him for their king. He was called to the assistance of the Jutlanders upon an irruption of the Saxons into their territories, and promised the sovereignty of the country if he drove out the enemy. On this he immediately raised an army, gained a complete victory over the Saxons, and obliged them to leave the country; and he was accordingly elected king.

In such early ages as these, we are not to look for any authentic history either of this or any other kingdom. The history of Denmark, for a great number of ages after the reign of *Dan*, is filled with fabulous exploits of heroes, encounters with giants, dragons, &c. One of their kings named *Frotho*, who reigned about 761 years before Christ, is said to have conquered all Britain, Sleswick, Russia, Pomerania, Holstein, &c. an assertion which cannot easily be credited, considering the difficulty which succeeding warriors, even the greatest in the world, found to subdue the inhabitants of those countries.—It is certain, however, that anciently the kingdom of Denmark made a much more conspicuous figure than it does at present. The Danes appear to have had a very considerable naval force almost from the foundation of their empire; and the conquests they undoubtedly made in our island are certain proofs of their valour.

The natural enemies of the Danes, were the Swedes, Norwegians, and Saxons; especially the first. With one or other of these nations almost perpetual war was carried on. The kingdom was also often rent by civil dissensions; which the neighbouring monarchs did not fail to take advantage of, in order to reduce the kingdom of Denmark under their subjection. As neither party, however, generally came off with advantage, the history of these wars affords nothing interesting or entertaining.—One of the greatest of the Danish monarchs was *Valdemar I.* who obtained the throne in 1157; having defeated and killed his competitor *Swen*, after a ten years civil war. He maintained a long war with the Vandals, whose power he at last entirely broke, and reduced under his subjection the island of Rugen. He also proved victorious over the Norwegians, so that their king and queen came in person to submit to him. In 1165, he also laid the foundations of the city of Dantzic, which, though it hath since become a place of much consequence, consisted at first only of a few poor fishermen's huts; but the privileges and immunities conferred upon it by this monarch, soon proved the means of its becoming a flourishing city.

1
Name
whence
derived.

2
Dan the
first king.

3
History of
this country
fabulous for
many ages.

4
Valdemar I.
a great mo-
narch.

Denmark.

city.—In 1169, he entirely subdued the Courlanders; and, soon after, was invested with the duchy of Holstein, by the emperor Frederic Barbarossa. He is said to have been poisoned by a quack medicine, given with a design to recover him from a distemper with which he was seized in 1182.

5
Power of
Denmark
in 1195.

In the year 1195, Canute, Valdemar's successor, caused a muster to be made of all the men fit to bear arms in his dominions; and ordered each province to fit out its proportion of shipping, every way equipped, and ready for action. The whole force of Denmark, at that time, consisted of 670 ships of war, besides the squadrons supplied by vassals, tributary states, and allies. The number of the land-forces is not mentioned. In the reign of this prince, the Danish dominions were enlarged by the entire conquest of Stromar, the districts of Lubec and Hamburg, formerly known by the name of *Nordalbingia*, but now included under the general name of *Holstein*. He died in 1203, and was succeeded by Valdemar II. who proved a very great and warlike prince. In 1211, he founded the city of Stralsund, opposite to the Isle of Rugen. The same year his queen died in child-bed; and in memory of her he built the castle of *Droningholm*, that name importing the *Queen's-Island*. In 1218, he undertook an expedition against the Livonians, having received advice that they, assisted by the Lithuanians, Muscovites, and other barbarous nations, had driven from their habitations all those in their neighbourhood who had embraced Christianity, and taken an oath of allegiance to the crown of Denmark. Fitting out a powerful fleet, therefore, he immediately set sail for that country; but his troops were no sooner landed, than they were seized with a panic at the sight of such a powerful army of savages as were assembled to oppose them. The king himself was dismayed at the unusual spectacle of a whole army clothed in skins, and resembling beasts more than human creatures. Encouraged, however, by the bishops who attended him, he ventured an engagement, and overthrew the barbarians with incredible slaughter. This victory was gained near the fortress of *Valdemar*, which received its name on that account.

6
Expedition
of Valde-
mar II. a-
gainst the
Livonians.

7
Flourishing
state of the
kingdom.

How potent and flourishing the kingdom of Denmark was at this time, appears from an estimate of the revenues of the tributary provinces, those countries conquered by Valdemar, and the standing forces of the whole kingdom. This account was copied by Pontanus from Witfeld, a writer of those days, who had it from a register kept by Valdemar's steward. From the provinces were daily sent in 24 last of oats, 24 last of rye, and half that quantity of wheat, 13 talents of cheese and butter, and nine of honey; 24 oxen, 300 sheep, 200 hogs; and 600 marks of coined money. This was the certain revenue: but to this was added near an equal sum from adventitious circumstances; such as fines, forfeitures, taxes on law-suits and pleadings, with a variety of other contingencies; the whole amounting to upwards of 100,000 marks a-day, or 23,730,000 l. *per annum*; a sum in those days almost incredible.—With this revenue were kept for constant service 1400 great and small ships for the king's use, each of which at a medium carried 121 soldiers; making the whole of the standing forces, besides garrisons, consist of 169,400 fighting men.

In 1223, a very great misfortune befel Valdemar,

notwithstanding all his power. Henry earl of Swerin, otherwise called *Henry Palatine*, a German prince, having been deprived of part of his dominions by Valdemar, surprised and carried off the king himself, and kept him close prisoner for three years. The conditions on which he at last obtained his liberty were very hard. He was obliged to pay a prodigious sum of money; to relinquish Holstein, Swerin, Hamburg, and all his possessions on the other side of the Elbe; and lastly, solemnly to swear that he would maintain this compulsive contract, and never take any measures to punish Henry or his associates. This treaty was signed on the 25th of March 1226.

Besides these territories which the Danish monarch had been obliged to cede by treaty, many tributary princes took the opportunity of his captivity to recover their liberty; and among the rest, the inhabitants of Lubec revolted, and entered into alliance with Albert duke of Saxony against Valdemar. The latter, however, was not of a disposition to submit tamely to such treatment. He obtained a dispensation from the Pope to break his engagements with Henry, and immediately entered Holstein at the head of a numerous army. Here he was met by several German princes, at the head of a very numerous army; and a desperate engagement ensued. Valdemar at first had the advantage; but being wounded in the eye, his troops were at last defeated with great slaughter. It doth not appear that ever the king of Denmark was able to revenge himself of his enemies, or to recover the dominions he had lost. So far from this, he was obliged, in 1228, to cede Lawenburg to the duke of Saxony, who had already seized on Ratzburg and Molna. Soon after this, his eldest son Valdemar was accidentally killed as he was hunting, and his two other sons married the daughters of his two greatest enemies. Abel, the third son, married the daughter of Adolphus duke of Holstein; and Eric, the second, married the duke of Saxony's daughter. These misfortunes are supposed to have hastened his death, which happened in the month of April 1242.

On the death of Valdemar, the kingdom was divided between the two young princes; and between them a war commenced the very next year. A peace was concluded the year following, and war renewed the year after; but how long it continued, we are not informed. In 1250, Eric paid a visit to his brother Abel, intreating his mediation between him and the princes of Holstein, with whom he was then at war. Abel received him, in appearance, with great kindness, and promised that his utmost endeavours to procure a reconciliation should not be wanting; but, in the mean time, laid a plan for having him murdered at sea: this was effected, and Abel became master of the whole kingdom.

The new king did not long enjoy the sovereignty he had so wickedly obtained. He was tormented by his own conscience; especially when he found among his brother's papers, one by which he was left heir to the whole kingdom on the death of Eric, and many kind expressions with regard to himself. He was at last killed in a battle with his own subjects in 1252, on account of some taxes he intended to impose.

From this time to the year 1333, the kingdom of Denmark gradually declined. Usurpers established themselves

Denmark.

8
Valdemar
taken prisoner.

9
Released on
condition of
ceding part
of his territories.

10
He breaks
the treaty,
but is de-
feated.

11
Civil war
between his
two sons.

12
Kingdom
divided
among a
number of
petty ty-
rants.

Denmark.

themselves in different provinces; while the kings of Sweden did not fail to avail themselves of the distracted state of the Danish affairs. In 1333, died Christopher II. who possessed only the cities of Scanderburg in Jutland and Neoburg in Fionia, with some few other inconsiderable places, of all the hereditary dominions of Denmark. Halland, Holbec, Calemburg, and Samsoe, were held by Canute Porcius; Schonen, Lyftre, and Bleking, by the king of Sweden, to whom they had been lately sold: John earl of Wagria had the jurisdictions of Zealand, Falstie, Laaland, and Femerin; Gerhard, of Jutland and Fionia; and Lawrence Jonea, of Lang-land and Arras.

After the death of Christopher, an interregnum of seven years ensued.—The first attempt for the sovereignty was made by Otho, second son to the late king, who laid a scheme for driving Gerhard out of Jutland; but not being able to accomplish it, he was taken prisoner, and closely confined by Gerhard.—The king of Sweden next wrote to Pope Benedict XIII. beseeching his Holiness to confirm to him the provinces of Schonen and others which he possessed; and to allow him to subdue the rest of the kingdom, which was now usurped and rendered miserable by a set of petty princes, who knew not how to govern. To influence him the more powerfully, he also promised to hold this kingdom of the Pope; and to pay him the usual tax collected by the church. This request, however, was refused. Valdemar of Sleswic, nephew to Gerhard, then aspired to the sovereignty. He had formerly been elected king; but had given over all thoughts of enjoying the sovereignty, on account of the superior influence of Christopher; but now resumed his ambitious views at the instigation of his uncle. Several of the nobility also cast their eyes on young Valdemar, Christopher's son, now at the emperor's court. But while each of these princes were laying schemes to aggrandise themselves, the unhappy Danes were distressed by exorbitant taxes, famine, and pestilence; the two last in consequence of the former. The peasants neglected to cultivate the lands, which they held on a very precarious tenure; the consequence of this was poverty and an unwholesome diet; and this, co-operating with the peculiar disposition of the air, produced a plague, which destroyed more than half the inhabitants of the country. The poor dropped down dead on the streets with disease and hunger, and the gentry themselves were reduced to a state of wretchedness; yet, though the whole of the kingdom was evidently on the verge of ruin, ambitious projects employed the great, as if every thing had been in the most profound tranquillity.

In the midst of these grievous calamities, Gerhard, sovereign of Jutland, proposed to his nephew Valdemar an exchange of territories, which he believed would prove favourable to the designs of the latter on the crown. A treaty for this purpose was actually drawn up and signed; but the inhabitants, notwithstanding their distressed situation, so highly resented their being disposed of like cattle, from one master to another, that they refused to pay the usual taxes. Gerhard resolved to compel them; and therefore led 10,000 men, whom he had levied in Germany, into the heart of the province. Providence, however, now raised up an enemy to this tyrant. One Nicholas Norevi, a man greatly

esteemed for his courage, public spirit, and prudence, beheld with sorrow the condition to which Denmark was reduced. He had long meditated a variety of projects for its relief, and at last imagined things were in such a situation that the whole depended on his single arm. Young Valdemar, Christopher's son, had a number of adherents in the kingdom; his most dangerous enemy was Gerhard; and could he be removed, the Jutlanders would at least be free from an oppressor, and might choose Valdemar, or any other they thought proper, for their sovereign. Collecting a body of chosen horse, therefore, he marched in the night to Randershusen, where Gerhard had fixed his head quarters; and having forced open the tyrant's quarters, immediately put him to death. He then fled with the utmost expedition; but was pursued and overtaken by a party of the enemy's horse, through which he forced his way and escaped. Gerhard's sons hearing of his death, retired into Holstein, from whence they had come; leaving the army, composed chiefly of Holsteiners, to be cut in pieces by the enraged peasants, who fell upon them from every quarter.

Still, however, the Holsteiners kept possession of the citadels and fortified places, from whence Nicholas resolved to dislodge them. He accordingly raised a body of forces; attacked and took Landen, a castle situated on the river Scherne: After which he laid siege to Albeg; but the garrison making an obstinate defence, he turned the siege into a blockade, by which they were soon reduced to great extremity. The governor sent an express to the sons of Gerhard, acquainting them with the impossibility of his holding out more than a few days, without being relieved. This determined them to march to the relief of so important a place. They came up with Nicholas just as the governor was ready to surrender, but were defeated; though Nicholas was unfortunately killed in the engagement.

Jutland having thus regained its liberty, the rest of the kingdom followed its example. Zealand first openly declared itself. Here Henry, Gerhard's son, maintained several garrisons; and resolved to defend his possessions in spite of all the power of the inhabitants. For this purpose he drew together an army; but, in the mean time, a tumult arose among the peasants on account of a Danish nobleman slain by the Holsteiners. By this the people were at last so irritated, that falling upon the Holsteiners sword in hand, they killed 300 of them, drove the rest out of the island, and chose Valdemar, Christopher's son, for their sovereign.

The Danes now resumed their courage; the lands were cultivated, the famine and pestilence ceased, and the kingdom began to flourish as formerly. Matters continued in a prosperous way till 1387, when Margaret mounted the throne. She raised the kingdom to its highest pitch of glory, as partly by her address, and partly by hereditary right, she formed the union of Calmar, by which she was acknowledged sovereign of Sweden, Denmark, and Norway. She held her dignity with such firmness and courage, that she was justly styled the *Semiramis of the North*. Her successors being destitute of her great qualifications, the union of Calmar fell to nothing; but Norway still continued annexed to Denmark. About the year 1448, the

Denmark.

14
Nicholas
Norevi re-
covers the
liberty of
Jutland.

15
He is killed.

16
Margaret
unites the
crowns of
Denmark,
Sweden, and
Norway.

13
Distressed
state of the
kingdom.

Denmark. crown of Denmark fell to Christian count of Oldenburg, from whom the present royal family of Denmark is descended; and, in 1536, the Protestant religion was established in Denmark by that wise and politic prince Christian III.

Christian IV. of Denmark, in 1629, was chosen for the head of the Protestant league formed against the house of Austria: but, though brave in his own person, he was in danger of losing his dominions; when he was succeeded in that command by the famous Gustavus Adolphus, king of Sweden. The Dutch having obliged Christian, who died in 1648, to lower the duties of the Sound, his son Frederic III. consented to accept of an annuity of 150,000 florins for the whole. The Dutch, after this, persuaded him to declare war against Charles Gustavus king of Sweden, which had almost cost him his crown in 1657. Charles stormed the fortress of Fredericstadt; and in the succeeding winter, he marched his army over the ice to the island of Funen, where he surprized the Danish troops, took Odensee and Nyburg, and marched over the Great Belt to besiege Copenhagen itself. Cromwell, the English usurper, interposed: and Frederic defended his capital with great magnanimity till the peace of Roschild; by which Frederic ceded the provinces of Halland, Bleking, and Sconia, the island of Bornholm, Bahus, and Drontheim, in Norway, to the Swedes. Frederic sought to elude those severe terms; but Charles took Cronenburg, and once more besieged Copenhagen by sea and land. The steady intrepid conduct of Frederic under these misfortunes endeared him to his subjects; and the citizens of Copenhagen made an admirable defence, till a Dutch fleet arrived in the Baltic, and beat the Swedish fleet. The fortune of war was now entirely changed in favour of Frederic, who showed on every occasion great abilities, both civil and military: and having forced Charles to raise the siege of Copenhagen, might have carried the war into Sweden, had not the English fleet, under Montague, appeared in the Baltic. This enabled Charles to besiege Copenhagen a third time: but France and England offering their mediation, a peace was concluded in that capital; by which the island of Bornholm returned to the Danes; but the island of Rugen, Bleking, Halland, and Schonen, remained with the Swedes.

17
Several provinces ceded to Sweden.

18
Remarkable revolution, by which the king is rendered absolute.

The year 1660 affords us an example of a revolution almost unequalled in the annals of history, viz. that of a free people resigning their liberty into the hands of their sovereign, and of their own accord, and without the least compulsion, rendering him despotic. This was occasioned by the great character which Frederic had acquired by his prudent and valiant conduct when Copenhagen was besieged by the king of Sweden; and at that time he had also taken care to ingratiate himself with the commonalty, by obliging the nobility to allow them some immunities which they did not enjoy before; allowing them also, by a special edict, to possess lands, and enjoy all the privileges of nobility. After the conclusion of the treaty with Sweden, a diet was summoned at Copenhagen, to take into consideration the state of the kingdom, which was now very much exhausted, both by reason of the debts in which it was involved, and by the calamities of war. This distressed state of affairs was, by the commons, at-

tributed to the nobility; who, on the other hand, took no care to conciliate the affections of the inferior classes, but rather increased the discontents by their arrogance. They had even the imprudence to remonstrate against the immunities above-mentioned, which had been granted by the king during the siege. In consequence of this the deputies of the commons and clergy united against them; and being joined by the citizens of Copenhagen, formed a very considerable party. On bringing forward in the assembly the sums necessary for the national exigencies, a general excise was proposed by the nobles on every article of consumpt; and to which they themselves were willing to submit, though, by an express law, their order was to be exempted from all taxes. This offer was accompanied with a remonstrance to the king; in which they endeavoured, not only to reclaim many obsolete privileges, but to add fresh immunities, and introduce many other regulations, all of them tending to diminish the royal prerogative, and check the rising influence of the commons and clergy. This proposal occasioned great disputes in the diet; and the two inferior orders insisted that they would not admit of any tax which should not be levied equally upon all ranks, without reserve or restriction. The nobles not only refused to comply with this proposal, but even to be subject to the tax for more than three years; pretending that all taxes whatever were infringements on their privileges. By way of compensation, however, they proposed new duties upon leather and stamped paper, and at last offered to pay a poll-tax for their peasants. This exchange seemed at first to be agreeable to the two inferior estates; but they suddenly altered their mind, and demanded that the fiefs and domains, which the nobles had hitherto possessed exclusively, and at a very moderate rent, should be let to the highest bidder.

Such a proposal appeared to the nobles to be to the last degree unreasonable. They said it was an infraction of their dearest privileges; as, by the 46th article of the coronation oath taken by Frederic, the possession of the royal fiefs was guaranteed to their order; but, in the heat of dispute, one of the chief senators having imprudently thrown out some reproachful expressions against the commons, a general ferment ensued, and the assembly was broken up in confusion. This gave occasion to the interposition of the king's friends; and an idea of rendering the crown hereditary, and enlarging the royal prerogative, began to be suggested as the proper method of humbling the nobility. This was first broached by the bishop of Zealand, at whose house a numerous meeting was held on the 6th of October 1660, where the scheme was fully laid open and approved; an act for rendering the crown hereditary drawn up; and the best method of publicly producing it taken into consideration. All this time the king seemed quite inactive, nor could he be prevailed upon to take any part in an affair which so nearly concerned him. But this indolence was abundantly compensated by the alertness and diligence of the queen; between whom and the heads of the party matters were soon concerted. On the morning of the 8th of October, therefore, the bishop of Zealand having obtained the consent and signature of the ecclesiastical deputies, delivered it to Naufen, burgomaster of Copenhagen and speaker of the commons. The latter, in a most persuasive

Denmark.

Denmark. suasive speech, expatiated upon the wretched state of the kingdom, the oppressive power of the nobles, and the virtues of the king; concluding with an exhortation to the commons, to subscribe the act, as the only means of saving their country.

The exhortations of the speaker had such an effect upon the assembly, that they subscribed it without a single dissent; the nobles being all the while in perfect security, and entirely ignorant of the transaction. Next day it was presented to the king by the bishop and Nausen; and as they were returning from the palace, they met the senator who had already given offence to the commons. With him they had a violent altercation, and were threatened with imprisonment for presuming to approach the king without acquainting the order of nobles. This threat was now altogether nugatory. The nobles having got some intelligence of what was going forward, had just assembled in order to consider of what was to be done, when the deputies of the two other estates entered, and informed them of their proceedings, and delivered to them the proposal for rendering the crown hereditary. By this declaration the nobles were thrown into the utmost consternation; but judging it improper to put a negative on the proposal at present, they endeavoured to gain time, and replied, that though they willingly gave their assent to the declaration, yet that, as it was a matter of great consequence, it deserved the most serious discussion. Nausen, however, replied, that the other estates had already taken their resolution; that they would lose no time in debate; and that if the nobles would not concur with them, they would immediately repair to the palace by themselves, where they had not the least doubt that the king would graciously accept their proffer.

In the mean time the nobles had privately dispatched a message to the king, intimating, that they were willing to render the crown hereditary to the male line of his issue, provided it was done with all the usual formalities. But this proposal did not prove agreeable to his majesty, unless they would confirm the right of succession in the female line also. He added, however, with great appearance of moderation, that he by no means wished to prescribe rules for their conduct; they were to follow the dictates of their own judgment; but as for his part, he would owe every thing to their free consent. While the nobles were waiting for this answer, the other deputies, perceiving that they wished to keep the matter in suspense, lost all patience, and repaired in solemn procession to the court; where, being admitted into the royal presence, the matter was opened by the bishop of Zealand. He addressed his majesty on the resolution taken by the clergy and commons, offering in their name to render the crown hereditary, and to invest him with absolute authority; adding, that they were ready to sacrifice their lives in the defence of an establishment so salutary to their country. His majesty thanked them for their favourable intentions; but mentioned the concurrence of the nobles as a necessary condition; though he had no doubt of this when they should have time to accompany the declaration with all the necessary formalities; he assured them of his protection, promised a redress of all grievances, and dismissed them with an exhortation to continue their sittings untill they should have

brought their design to perfection, and he could receive their voluntary submission with all due solemnity. **Denmark.**

On departure of the commons from the place where they had been conferring with the nobles, the latter had been so distracted and confused, that they broke up without coming to any resolution, designing, however, to decide the matter finally at their meeting on the afternoon of the following day. But while they were thus wavering and irresolute, the court and the popular party took the necessary measures to force them to a concurrence. This was effectually done by an order to shut the gates; for by this they were so much dispirited, that they instantly dispatched deputies to the court, with a message that they were ready to concur with the commons, and subscribe to all the conditions of the royal pleasure.

Nothing now remained but to ratify the transaction with all proper solemnity. Accordingly, on the 16th of October, the estates annulled, in the most solemn manner, the capitulation or charter signed by the king on his accession to the throne; absolved him from all his engagements; and cancelled all the limitations imposed upon his sovereignty. The whole was concluded by the ceremony of doing homage, taking the new oath with great ceremony; after which a new form of government was promulgated under the title of *The Royal Law of Denmark*.

Frederic was succeeded, in 1670, by his son Christian V. who obliged the Duke of Holstein Gottorp to renounce all the advantages he had gained by the treaty of Roschild. He then recovered a number of places in Schonen; but his army was defeated in the bloody battle of Lunden by Charles XI. of Sweden. This defeat did not put an end to the war, which Christian obstinately continued, till he was defeated entirely at the battle of Landskroon; and he had almost exhausted his dominions in his military operations, till he was in a manner abandoned by all his allies, and forced to sign a treaty on the terms prescribed by France, in 1679. Christian, however, did not desist from his military attempts; and at last he became the ally and subsidiary of Louis XIV. who was then threatening Europe with chains. Christian, after a vast variety of treating and fighting with the Holsteiners, Hamburgers, and other northern powers, died in 1699. He was succeeded by Frederic IV. who, like his predecessors, maintained his pretensions upon Holstein; and probably must have become master of that duchy, had not the English and Dutch fleets raised the siege of Tonningen; while the young king of Sweden, Charles XII. who was no more than 16 years of age, landed within eight miles of Copenhagen, to assist his brother-in-law the duke of Holstein. Charles probably would have made himself master of Copenhagen, had not his Danish majesty agreed to the peace of Travendahl, which was entirely in the duke's favour. By another treaty concluded with the States-General, Frederic obliged himself to furnish a body of troops, who were to be paid by the confederates; and who afterwards did great service against the French.

Notwithstanding this peace, Frederic was perpetually engaged in war with the Swedes; and while Charles was an exile at Bender, he marched through Holstein into Swedish Pomerania; and in the year 1712, into Bremen, and took the city of Stade. His troops, however,

Denmark.

however, were totally defeated by the Swedes at Gadesbusch, who laid his favourite city of Altena in ashes. Frederic revenged himself, by seizing great part of the ducal Holstein, and forcing the Swedish general, count Steinbock, to surrender himself prisoner, with all his troops. In the year 1716, the successes of Frederic were so great, by taking Tonningen and Stralsund, by driving the Swedes out of Norway, and reducing Wismar and Pomerania, that his allies began to suspect he was aiming at the sovereignty of all Scandinavia. Upon the return of Charles of Sweden from his exile, he renewed the war against Denmark with a most embittered spirit; but on the death of that prince, who was killed at the siege of Fredericshal, Frederic durst not refuse the offer of his Britannic majesty's mediation between him and the crown of Sweden; in consequence of which, a peace was concluded at Stockholm, which left him in possession of the duchy of Sleswick. Frederic died in the year 1730, after having, two years before, seen his capital reduced to ashes by an accidental fire. His son and successor, Christian Frederic, made no other use of his power, and the advantages with which he mounted the throne, than to cultivate peace with all his neighbours, and to promote the happiness of all his subjects, whom he eased of many oppressive taxes.

20
An advantageous
treaty with
Great Britain.

In 1734, after guaranteeing the Pragmatic Sanction, Christian sent 6000 men to the assistance of the emperor, during the dispute of the succession to the crown of Poland. Though he was pacific, yet he was jealous of his rights, especially over Hamburg. He obliged the Hamburgers to call in the mediation of Prussia, to abolish their bank, to admit the coin of Denmark as current, and to pay him a million of silver marks. He had, two years after, viz. in 1738, a dispute with his Britannic majesty about the little lordship of Steinhorst, which had been mortgaged to the latter by the Duke of Holstein Lawenburg, and which Christian said belonged to him. Some blood was spilt during the contest; in which Christian, it is thought, never was in earnest. It brought on, however, a treaty, in which he availed himself of his Britannic majesty's predilection for his German dominions; for he agreed to pay Christian a subsidy of 70,000 l. Sterling a-year, on condition of keeping in readiness 7000 troops for the proportion of Hanover: this was a gainful bargain for Denmark. And two years after, he seized some Dutch ships for trading without his leave to Iceland: but the difference was made up by the mediation of Sweden. Christian had so great a party in that kingdom, that it was generally thought he would revive the union of Calmar, by procuring his son to be declared successor to his then Swedish majesty. Some steps for that purpose were certainly taken: but whatever Christian's views might have been, the design was frustrated by the jealousy of other powers, who could not bear the thoughts of seeing all Scandinavia subject to one family. Christian died in 1746, with the character of being the father of his people.

His son and successor, Frederic V. had, in 1743, married the princess Louisa, daughter to his Britannic majesty. He improved upon his father's plan for the happiness of his people; but took no concern, ex-

cept that of a mediator, in the German war. For it was by his intervention that the treaty of Closter-seven was concluded between his royal highness the late duke of Cumberland and the French general Richelieu. Upon the death of his first queen, who was mother to his present Danish majesty, he married a daughter of the duke of Brunswick Wolfenbuttel; and died in 1766.

He was succeeded by his son Christian VII. his present Danish majesty, who married the princess Carolina Matilda of England. But this alliance proved extremely unfortunate, which is generally ascribed to the intrigues of the queen dowager, mother-in-law to the present king. She is represented as ambitious, artful, and designing; and as one who wished to have set aside the king himself in favour of her own son Frederic. On the arrival of the young queen, however, she received her with much apparent affection, telling her the faults of her husband, and at the same time promising to assist her on all occasions in reclaiming him from his vicious courses. Thus, under pretence of kindness and friendship, she sowed the seeds of dissention betwixt the royal pair, before the unfortunate princess had the least suspicion of her danger; and while the unthinking queen revealed to the dowager all her secrets, the latter is said to have placed spies about the king to keep him constantly engaged in riot and debauchery, to which he was at any time too much inclined. At last it was contrived to throw a mistress in his way, whom he was advised to keep in his palace. —It was impossible that any woman could pass such a piece of conduct unnoticed; however, in this affair, the queen dowager behaved with her usual duplicity. In the absence of the king, she pretended great resentment against him, and even advised the queen not to live with him; but as soon as he returned, when his consort reproached him, though in a gentle manner, with his conduct, she not only took his part, but insisted that it was presumptuous in a queen of Denmark to pretend to direct her husband's conduct. Notwithstanding this incendiary behaviour, the queen was in a short time reconciled to her husband, and lived on very good terms with him until she again excited the jealousy of the dowager, by assuming to herself the direction of that part of the public affairs which the dowager had been accustomed to look upon as her own privilege. For some time it seemed to be difficult for her to form any effectual plan of revenge, as the king had displaced several of her friends who had for some time had a share in the administration. Two new favourites, Brandt and Struensee, had now appeared; and as these paid great court to the queen, the dowager took occasion to insinuate, not only that the queen was harbouring improper designs with regard to the government, but that she had an intrigue with Struensee. The new ministers indeed behaved imprudently, in attempting to make a reformation in several of the departments of the state at once, instead of waiting patiently until an opportunity should offer; and in these precipitate schemes they were certainly supported by the queen. These instances of want of circumspection in the ministers, were represented by the dowager and her party to be a settled scheme to make an alteration in the government; and a design was even spoken

Denmark.

21
Intrigues
of the
dowager,
and misfor-
tunes of
the young
queen.

Denmark. spoken of to supersede the king as being incapable of governing, to declare the queen regent during the minority of her son, and to make Struensee prime minister.

Thus a very formidable opposition was formed against Brandt and Struensee, and as the latter had made some innovations in the military department as well as the civil, some of the principal officers, who were the creatures of the dowager, represented him as designing to overthrow the whole system of government. When matters were brought to a proper bearing, it was at last resolved to surprise the king in the middle of the night, and force him instantly to sign an order, which was to be ready prepared, for committing the obnoxious persons to separate prisons, accuse them of high treason in general, and particularly with a design to dethrone or poison the king. If this could not be properly authenticated, it was determined to suborn witnesses to confirm the report of a criminal correspondence between the queen and count Struensee. This design was executed on the night of the 16th of January 1772, when a masked ball was given at the court of Denmark. The queen, after having danced most part of the night with count Struensee, retired to her chamber about two in the morning. About four the same morning, prince Frederic got up, and went with the queen-dowager to the king's bed-chamber, accompanied by general Eichstedt and count Rantzau. Having ordered the king's valet-de-chambre to awake him, they informed his majesty, that the queen, with count Struensee, his brother, and Brandt one of the new ministers, were at that moment busy in drawing up an act of renunciation of the crown, which they would immediately after compel him to sign; and therefore there was a necessity for him to give an order for their arrestment. The king is said to have hesitated for some time, and inclined to refuse this scandalous requisition; but at length, thro' importunity, and, according to some accounts, being even threatened into compliance, he consented to what they required. Count Rantzau was dispatched, at that untimely hour, into the queen's apartments, and immediately executed the orders of the king. The unfortunate princess was conveyed in one of the king's coaches to the castle of Cronenburgh, together with the infant princess, attended by Lady Mostyn, and escorted by a party of dragoons. Struensee and Brandt were seized in their beds and imprisoned, as well as several other members of the new administration, to the number of 18. The queen dowager and her adherents seemed to assume the government entirely into their own hands, and a total change took place in the departments of administration. The prince royal, son of queen Matilda, then in the fifth year of his age, was put under the care of a lady of quality, who was appointed governess, under the superintendency of the queen dowager. Struensee and Brandt were put in irons, and very severely treated: they underwent long and frequent examinations; and Struensee at last confessed that he had a criminal intercourse with the queen. Both their heads were struck off on the 28th of April; but many of their partisans were set at liberty. The confession of Struensee is by many, and indeed with no small degree of probability, supposed to have been extorted by fear of the torture, and to have no foundation in truth; but as no means were used by the court of Britain to clear up the queen's character, the affair must undoubtedly

²²
Execution
of Struensee
and Brandt.

wear a suspicious aspect. At last, however, his Britannic majesty interfered so far as to send a small squadron of ships to convey the unhappy princess to Germany. Here the city of Zell was appointed for her residence; and in this place she died of a malignant fever on the 10th of May 1775, aged 23 years and 10 months.

The inhuman treatment of this princess did not long prove advantageous to the queen dowager and her party: A new revolution took place in April 1784, when the queen dowager's friends were removed, a new council was formed under the auspices of the prince royal, and no instrument deemed authentic unless signed by the king and countersigned by the prince. Since that time, the king, who from the beginning of his administration showed a great degree of incapacity, has been entirely laid aside from public business, and has no share in the government. The Danes are at present engaged on the side of Russia in her war with the Turks, the immediate opponent of Denmark being Sweden.

The kingdom of Denmark at present is divided into six grand districts or provinces; viz. 1. Denmark properly so called, comprehending the islands of Zealand, Funen, Langland, Laaland, Falsria, Mona, Samsoe, Arroee, Bornholm, Anhoul, Leflaw, and that part of the continent called *North Jutland*. 2. The duchy of Sleswick, or South Jutland. 3. The duchy of Holstein. 4. The earldoms of Oldenburg and Delmenhorst. 5. The kingdom of Norway; and 6. Iceland, with the islands lying in the Northern Seas; for a particular description of which see these articles.

The language of Denmark is a dialect of the Teutonic, and bears a strong affinity to the Norwegian tongue; but is disagreeable to strangers, on account of the drawling tone with which it is pronounced. They have borrowed many words from the German; and, indeed the High Dutch is used in common discourse by the court, the gentry, and the burghers. The better sort likewise understand French, and speak it fluently. The Lutheran doctrine is universally embraced through all Denmark, Sweden, and Norway; so that there is not another sect in these kingdoms. Denmark is divided into six dioceses, one in Zealand, one in Funen, and four in Jutland: but the bishops are, properly speaking, no other than superintendants, or *primi inter pares*. They have no cathedrals, ecclesiastical courts, or temporalities. Their business is to inspect the doctrine and morals of the inferior clergy. The revenue of the bishop of Copenhagen amounts to about 2000 rixdollars; and this is the richest benefice in the kingdom. The clergy are wholly dependant on the government. They never intermeddle, nor are employed or consulted in civil affairs. They, nevertheless, have acquired great influence, and erected a sort of spiritual tyranny over the minds of the common people, by whom they are much revered. They are generally speaking, men of exemplary lives, and some crudition. Their churches are kept more clean, and better adorned, than those of England; the people are great lovers of music, and their organists commonly entertain the congregation for half an hour before and after service. The state of literature is very low in Denmark. There is, indeed, an university at Copenhagen; but meanly endowed, and very ill supplied with masters. Taste and the belles lettres are utterly unknown in this country, which yet has produced some

Denmark.

²³
Change in
the admini-
stration.

²⁴
Division of
the king-
dom.

²⁵
Language,
religion,
&c.

men

Denmark.

26
Govern-
ment.

men of great eminence in mathematics and medicine; such as Tycho Brahe, Borrichius, and the Bartholines.

The constitution of Denmark was heretofore of the free Gothic original. The convention of the estates, even including the representatives of the boors or peasants, elected a king for his personal virtues, having still a regard to the son of their late monarch, whom, however, they made no scruple of setting aside, if they deemed him unworthy of the royal dignity. They enacted laws; conferred the great offices of state; debated all affairs relating to commerce, peace, war, and alliances; and occasionally gave their consent to the imposition of necessary taxes. The king was no other than chief magistrate, generalissimo, and as it were prime minister to his people. His business was to see justice administered impartially; to command the army in time of war; to encourage industry, religion, arts, and sciences; and to watch over the interests of his subjects.

In 1660, however, the constitution was new modelled, as has been already related, and which was to the following purport. "The hereditary kings of Denmark and Norway should be in effect, and ought to be esteemed by their subjects, the only supreme head upon earth; they shall be above all human laws, and shall acknowledge, in all ecclesiastical and civil affairs, no higher power than God alone. The king shall enjoy the right of making and interpreting the laws, of abrogating, adding to, and dispensing with them. He may also annul all the laws which either he or his predecessors shall have made, excepting this royal law, which must remain irrevocable, and be considered as the fundamental law of the state. He has the power of declaring war, making peace, imposing taxes, and levying contributions of all sorts," &c. &c.

Then follow the regulations for the order of succession, the regency in case of minority, the majority of the king, the maintenance of the royal family; and, after having enumerated all the possible prerogatives of regal uncircumscribed authority, as if sufficient had not yet been laid down, it is added in the 26th article: "All that we have hitherto said of power and eminence, and sovereignty, and if there is any thing further which has not been expressly specified, shall all be comprised in the following words: "The king of Denmark and Norway shall be the hereditary monarch, and endued with the highest authority; inasmuch, that all that can be said and written to the advantage of a Christian, hereditary, and absolute king, shall be extended under the most favourable interpretation to the hereditary king or queen of Denmark and Norway," &c. &c.

27
Laws, &c.

The laws of Denmark are so concise, that the whole body is contained in one quarto volume, written in the language of the country. Every man may plead his own cause, without employing either counsel or attorney: but there are a few advocates for the benefit of those who cannot or will not speak in their own defence. The proceedings are so summary, that a suit may be carried through all the courts, and finally decided, in 13 months. There are three courts in Denmark, and an appeal lies from the inferior to the superior tribunal. The lowest of these is, in cities and towns, denominated the *Byfogtids Court*; and in the country, the *Herredsfogds*. Causes may be appealed from this to the *Landsting*, or general head court for No. 96.

the province; but the final appeal lies to the court of *High-right* in Copenhagen, where the king presides in person, assisted by the prime nobility. The judges of the two other courts are appointed by his majesty's letters patent, to sit and determine causes *durante bene placito*. These are punishable for any misdemeanours of which they may be guilty: and when convicted of having passed an unjust sentence, they are condemned to make reparation to the injured party. Their salaries are very inconsiderable, and paid out of the king's treasury, from the fines of delinquents, besides a small gratuity from the plaintiff and defendant when sentence is passed. Such is the peculiar privilege enjoyed by the city of Copenhagen, that causes appealed from the *Byfogtids court*, instead of passing through the provincial court, are tried by the burgo-master and common-council; from whence they proceed immediately to the highest court as the last resource. Affairs relating to the revenue are determined in the rent-chamber of Denmark, which is analogous to our court of exchequer. To another tribunal, composed of some members from this rent-chamber, from the admiralty, and college of commerce, merchants appeal for redress when their commodities are seized for non-payment of duties. All disputes relating to the sea are determined by the court of admiralty, constituted of commissioners appointed for these purposes. The chancellery may be more properly termed a *secretary's office*. It consists of clerks, who write and issue all the king's decrees and citations, transcribe papers, and, according to the directions they receive, make draughts of treaties and alliances with other nations. The government of Denmark is very commendable, for the excellent police it maintains. Justice is executed upon criminals with great severity; and such regulations are established as effectually prevent those outrages that are daily committed in other countries. No man presumes to wag his tongue against the government, far less to hatch schemes of treason. All the subjects are, or seem to be, attached to their sovereign by the ties of affection. Robbery on the high-way, burglary, coining or clipping, are crimes seldom or never heard of in Denmark. The capital crimes usually committed are theft and manslaughter. Such offenders are beheaded very dexterously with one stroke of a sword. The executioner, though infamous, is commonly rich; because, over and above the functions of his office, he is employed in other scandalous occupations, which no other person will undertake. He, by means of his understrapper, called the *pracher*, empties all the jakes, and removes from houses, stables, or streets, dead dogs, horses, &c. which no other Dane would vouchsafe to touch on any consideration whatever.

The Danish nobility and gentry are all included in the term *noblesse*; and formerly there were no distinctions of title: but within these 60 or 70 years, some few favourites have been dignified with the titles of *count* and *baron*. These, and these only, enjoy the privilege of disposing of their estates by will; though others may make particular dispositions, provided they have sufficient interest to procure the king's approbation and signature. The noblesse of Denmark formerly lived at their own seats with great magnificence; and at the conventions of estates met the king with numerous and superb retinues: but since he became absolute, they are so impoverished by exorbitant taxes, that they can hardly

28
Slavish con-
dition of
the Danish
subjects.

Denmark. hardly procure subsistence; and, for the most part, live obscurely in some corner of their ruined country palaces, unless they have interest enough to procure some employment at court. They no longer inherit the spirit and virtues of their ancestors; but are become servile, indolent, ostentatious, extravagant, and oppressive.

Their general character is a strange composition of pride and meanness, insolence and poverty. If any gentleman can find a purchaser for his estate, the king, by the Danish laws, has a right to one third of the purchase-money; but the lands are so burdened with impositions, that there would be no danger of an alienation, even tho' this restriction was not in force. Nay, some gentlemen in the island of Zealand have actually offered to make a surrender to the king of large tracts of very fertile land in the island of Zealand, if his majesty would be pleased to accept of them in place of the impositions laid on them. The reason of this is, because, by the law of Denmark, if any estate is burdened beyond what it can bear, the owner must make up the deficiency out of his other estates, if he has any. Hence the king generally refuses such offers; and some gentlemen have been transported with joy when they heard that his majesty had been "graciously pleased to accept their whole estates."

This oppression of the nobles by the king produces in them a like disposition to oppress the commons; and the consequence of all this is, that there is no part of the world where extravagance and dissipation reigns to such a degree. The courtiers maintain splendid equipages, wear fine clothes, drink a vast quantity of French wine, and indulge themselves with eating to excess. Such as derive money from their employments, instead of purchasing land in Denmark, remit their cash to the banks of Hamburgh and Amsterdam. The merchants and burghers tread in the steps of their superiors; they spend all their gains in luxury and pleasure, afraid of incurring the suspicion of affluence, and being stripped by taxation. The peasant, or boor, follows the same example. No sooner has he earned a rix-dollar, than he makes haste to expend it in brandy, lest it should fall into the hands of his oppressive landlord. This lower class of people are as absolute slaves as the negroes in the West Indies, and subsist upon much harder fare. The value of estates is not computed by the number of acres, but by the stock of boors, who, like the timber, are reckoned a parcel of the freehold; and nothing can be more wretched than the state of these boors. They feed upon stock-fish, salted meats, and other coarse diet: there is not the least piece of furniture of any value in their houses, except feather-beds, of which there is great plenty in Denmark, and which are used not only as beds to lie on but as blankets for covering. After the boor has toiled like a slave to raise the king's taxes, he must pay the overplus of his toil to his needy landlord. Should he improve his ground and repair his farm-house, his cruel master will immediately transplant him to a barren farm and a naked habitation, that he may let the improved ground to another tenant at a higher price. The peasants likewise sustain a great deal of damage and violence from the licentious soldiers that are quartered in their houses. They are moreover obliged to furnish horses and waggons for the royal family

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and all their attendants when the king makes a progress through the country, or removes his residence from one palace to another. On such occasions the neighbouring boors are summoned to assemble with their cattle and carriages, and not only to live at their own expence, but to bear every species of outrage from the meanest lacquies of those who attend his majesty. The warlike spirit of the Danes no longer subsists: the common people are mean-spirited, suspicious, and deceitful; nor have they that talent for mechanics, so remarkable in some northern nations. While the peasants are employed in their labour without doors, the women are occupied at home in spinning yarn for linen, which is here made in great perfection.

In Denmark, all persons of any rank above the vulgar dress in the French taste, and affect finery; the winter-dress of the ladies is peculiar to the country, very neat, warm, and becoming. The common people are likewise remarkably neat, and pride themselves in different changes of linen. They are very little addicted to jollity and diversion; their whole amusements consist in running at the goose on Shrove Tuesday, and in winter in being drawn in sleds upon the ice. With respect to marriage, the man and woman frequently cohabit together on contract long before the ceremony is performed. The nobility and gentry pique themselves on sumptuous burials and monuments for the dead: the corpse is very often kept in a vault, or in the chancel of a church, for several years, before an opportunity offers of celebrating the funeral.

The taverns in this country are poorly supplied; and he who diets in them must be contented to eat in a public room, unless he will condescend to pay an extravagant price for a private apartment. The metropolis is but indifferently furnished with game. The wild-ducks and plover are hardly eatable; but the hares are good, and the markets sometimes produce tolerable roebuck. Their sea-fish are not to be commended; but the rivers produce plenty of delicious carp, perch and craw-fish. The gardens of the gentry are well provided with melons, grapes, peaches, and all sorts of greens and salads in perfection.

The army of Denmark is composed, 1. of the troops of Denmark and Holstein; and 2. of Norway.

The forces of Denmark and Holstein are divided into regulars and national or militia. These forces (the foot and horse guards excepted, who are all regulars) are not separated, as in our army, into distinct regiments, but are formed in the following manner: Before the late augmentation, every regiment of infantry, when complete, consisted of 26 officers and 1632 privates, divided into ten companies of fusileers and two of grenadiers. Of these 1632 privates, 480, who are chiefly foreigners enlisted in Germany, are regulars. The remaining 1152 are the national militia, or peasants who reside upon the estates of their landholders, each estate furnishing a certain number in proportion to its value. These national troops are occasionally exercised in small corps upon Sundays and holidays; and are embodied once every year for about 17 days in their respective districts. By a late addition of ten men to each company, a regiment of infantry is increased to 1778, including officers. The expence of

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Army of
Denmark.

Denmark. each regiment, which before amounted to L. 6000, has been raised by the late augmentation to L. 8000. The cavalry is upon the same footing; each regiment consisting of 17 officers, including serjeants and corporals, and 565 privates, divided into five squadrons. Of these about 260 are regular, and the remainder national troops. The regiments of foot and horse guards are regulars; the former is composed of 21 officers and 465 men, in five companies; and the latter of 7 officers and 154 men, in two squadrons.

The forces of Norway are all national troops or militia, excepting the two regiments of Sundenfield and Nordenfield; and as the peasants of that kingdom are free, the forces are levied in a different manner from those of Denmark. Norway is divided into a certain number of districts, each whereof furnishes a soldier. All the peasants are, upon their birth, registered for the militia; and the first on the list supplies the vacancy for the district to which he belongs. After having served from 10 to 14 years, they are admitted among the invalids; and when they have attained the seniority of that corps, receive their dismissal. These troops are not continually under arms; but are only occasionally exercised like the national forces of Denmark. A fixed stipend is assigned to the officers, nearly equal to that of the officers in the regulars; but the common soldiers do not receive any pay, except when they are in actual service, or performing their annual manœuvres. The Academy of Land Cadets, instituted by Frederic IV. supplies the army with officers. According to this foundation, 74 cadets are instructed in the military sciences at the expence of the king. The whole amount of the Danish troops is computed at 60,900.

From their insular situation, the Danes have always excelled as a maritime people. In the earlier ages, when piracy was an honourable profession, they were a race of pirates, and issued from the Baltic to the conquests of England and Normandy. And though, since the improvement of navigation by the invention of the compass, other nations have risen to a greater degree of naval eminence, still, however, the Danes, as they inhabit a cluster of islands, and possess a large tract of sea-coast, are well versed in maritime affairs, and are certainly the most numerous, as well as the most experienced, sailors of the north.

The greatest part of the Danish navy is stationed in the harbour of Copenhagen, which lies within the fortifications; the depth of water being only 20 feet, the ships have not their lower tier of guns on board, but take them in when they get out of port. Beside large magazines, each vessel has a separate storehouse on the water's edge, opposite to which she is moored when in harbour, and may by this means be instantly equipped. The number of registered seamen are near 40,000, and are divided into two classes; the first comprises those inhabiting the coasts, who are allowed to engage in the service of merchant-ships trading to any part of the world. Each receives 8s. annually from the crown as long as he sends a certificate of his being alive; but is subject to a recall in case of war. The second comprehends the fixed sailors, who are constantly in the employ of the crown, and amount to about 4000, ranged under four divisions, or 40

companies: they are stationed at Copenhagen for the ordinary service of the navy, and work in the dock-yard. Each of them, when not at sea, receives 8s. ^{per month}, beside a sufficient quantity of flour and other provisions; every two years a complete suit of cloths; and every year breeches, stockings, shoes, and a cap. Some of them are lodged in barracks. When they sail, their pay is augmented to 20s. ^{per month}. The marine artillery consists of 800 men, in four divisions.

The whole navy consists of 38 ships of the line, including 9 of 50 guns and one of 44, and 20 frigates; but if we except those which are condemned, and those which are allotted only for parade, we cannot estimate that in 1779 the fleet consisted of more than 25 ships of the line, and 15 frigates fit for service; a number, however, fully adequate to the situation of Denmark; and if we include the excellence of the sailors, it must be esteemed as complete a navy as any in the north.

The revenue of his Danish majesty arises from taxes laid on his own subjects; from the duties paid by foreigners, from his own estate, crown-lands, and confiscations. The taxes are altogether arbitrary, and therefore fluctuating; but they are always grievous to the subject. They commonly consist of customs or toll, for export and import; of excise upon the consumption of wine, salt, tobacco, and all kinds of provisions; of taxes upon marriages, paper, brewing, grinding, and the exercise of different professions; of impositions on land, poll-money, ground-rent for all houses in Copenhagen and elsewhere; of money raised for maintaining fortifications, and for a portion to the king's daughter when she happens to be married; but this seldom exceeds 100,000 rixdollars. One considerable article in the revenue is the toll paid by foreign ships that pass through the Sound, or *Ore-Sound* (the strait between Schonen and Zealand), into the Baltic. This was originally no other than a small contribution, which trading nations agreed to make for maintaining lights at certain places, to direct their course through the passage in dark and stormy weather. At the same time these trading nations agreed, that every ship should pass this way, and pay its share of the expence, rather than use the Great Belt, which is the other passage, but unprovided with any such conveniency. In process of time the Danes converted this voluntary contribution into an exorbitant toll, and even exacted arbitrary sums in proportion to the weakness of the nation whose ships they visited. These exactions sometimes involved them in quarrels with their neighbours, and the toll was regulated in repeated treaties.

DENNIS, or ST DENNIS, a famous town of the Isle of France, with a Benedictine abbey wherein are the tombs of the kings of France, with a considerable treasure. E. Long. 2. 26. N. Lat. 48. 56.

DENNIS (John), the celebrated critic, was the son of a reputable tradesman in London, and born in the year 1657. He received the first branches of education at the great school in Harrow on the Hill, where he commenced acquaintance and intimacy with many young noblemen and gentlemen, who afterwards made considerable figures in public affairs, whereby he laid the foundation of a very strong and extensive interest, which might, but for his own fault, have been of infinite

Dennis. nite use to him in future life. From Harrow he went to Caius-college Cambridge; where, after his proper standing, he took the degree of bachelor of arts. When he quitted the university, he made the tour of Europe; in the course of which he conceived such a detestation for despotism, as confirmed him still more in those Whig principles which he had from his infancy imbibed.

On his return to England he became early acquainted with Dryden, Wycherly, Congreve, and Southerne; whose conversation inspiring him with a passion for poetry, and a contempt for every attainment that had not something of the *belles lettres*, diverted him from the acquisition of any profitable art, or the exercise of any profession. This, to a man who had not an independent income, was undoubtedly a misfortune: however, his zeal for the protestant succession having recommended him to the patronage of the Duke of Marlborough, that nobleman procured him a place in the customs worth L. 120 *per annum*; which he enjoyed for some years, till from profuseness and want of economy, he was reduced to the necessity of disposing of it to satisfy some very pressing demands. By the advice of Lord Halifax, however, he reserved to himself, in the sale of it, an annuity for a term of years; which term he outlived, and was, in the decline of his life, reduced to extreme necessity.

Mr Theo. Cibber relates an anecdote of him, which we cannot avoid repeating, as it is not only highly characteristic of the man whose affairs we are now considering, but also a striking and melancholy instance, among thousands, of the distressful predicaments into which men of genius and literary abilities are perhaps apter than any others to plunge themselves, by paying too slight an attention to the common concerns of life, and their own most important interests. "After that he was worn out (says that author) with age and poverty, he resided within the verge of the court, to prevent danger from his creditors. One Saturday night he happened to saunter to a public-house, which in a short time he discovered to be without the verge. He was sitting in an open drinking-room, when a man of a suspicious appearance happened to come in. There was something about the man which denoted to Mr Dennis that he was a bailiff. This struck him with a panic; he was afraid his liberty was at an end; he sat in the utmost solicitude, but durst not offer to stir lest he should be seized upon. After an hour or two had passed in this painful anxiety, at last the clock struck twelve; when Mr Dennis, in an ecstasy, cried out, addressing himself to the suspected person, "Now, Sir, bailiff or no bailiff, I don't care a farthing for you, you have no power now." The man was astonished at his behaviour; and when it was explained to him, was so much affronted with the suspicion, that had not Mr Dennis found his protection in age, he would probably have smarted for his mistaken opinion. A strong picture of the effects of fear and apprehension, in a temper naturally so timorous and jealous as Mr Dennis's; of which the following is a still more whimsical instance. In 1704 came out his favourite tragedy, *Liberty Asserted*; in which were so many strokes on the French nation, that he thought they were never to be forgiven. He had worked himself into a persuasion that

the King of France would insist on his being delivered up, before he would consent to a peace: and full of this idea of his own importance, when the congress was held at Utrecht, he is said to have waited on his patron the Duke of Marlborough, to desire that no such article might be stipulated. The Duke told him he really had no interest then with the ministry; but had made no such provision for his own security, though he could not help thinking he had done the French as much injury as Mr Dennis himself. Another story relating to this affair is, that being at a gentleman's house on the coast of Sussex, and walking one day on the sea-shore, he saw a ship sailing, as he fancied, towards him; he instantly set out for London, in the fancy that he was betrayed; and congratulating himself on his escape, gave out that his friend had decoyed him down to his house, to surrender him up to the French.

Mr Dennis, partly through a natural peevishness and petulance of temper, and partly perhaps for the sake of procuring the means of subsistence, was continually engaged in a paper-war with his contemporaries, whom he ever treated with the utmost severity: and, though many of his observations were judicious, yet he usually conveyed them in language so scurrilous and abusive, as destroyed their intended effect; and as his attacks were almost always on persons of superior abilities to himself, viz. Addison, Steele, and Pope, their replies usually turned the popular opinion so greatly against him, that, by irritating his testy temper the more, it rendered him a perpetual torment to himself; till at length, after a long life of vicissitudes, disappointments, and turmoils, rendered wretched by indiscretion, and hateful by malevolence, having outlived the reversion of his estate, and reduced to distress, from which his having been daily creating enemies had left him scarcely any hopes of relief, he was compelled to what must be the most irksome situation that can be conceived in human life, the receiving obligations from those whom he had been continually treating ill. In the very close of his days, a play was acted for his benefit at the little theatre in the Hay-market, procured through the united interests of Messrs Thomson, Mallet, and Pope; the last of whom, notwithstanding the gross manner in which Mr Dennis had on many occasions used him, and the long warfare that had subsisted between them, interested himself very warmly for him; and even wrote an occasional prologue to the play, which was spoken by Mr Cibber. Not long after this, viz. on the 6th of January 1733, he died, being then in the 77th year of his age.

Mr Dennis certainly was possessed of much erudition, and a considerable share of genius. In prose, he is far from a bad writer, where abuse or personal scurrility does not mingle itself with his language. In verse, he is extremely unequal; his numbers being at some times spirited and harmonious, and his subjects elevated and judicious; and at others, flat, harsh, and puerile.—As a dramatic author, he certainly deserves not to be held in any consideration. It was justly said of him by a wit, that he was the most complete instructor for a dramatic poet, since he could teach him to distinguish good plays by his *precepts*, and bad ones by his *examples*.

Denomina-
tion
||
Dentatus.

DENOMINATION (from *denomino*, of *de* and *no-men*, "a name;" a name imposed upon any thing, usually expressing some quality predominant therein.

DENOMINATOR, in arithmetic, a term used in speaking of fractions. See **ARITHMETIC**, No. 21.

DENSITY of BODIES, is that property directly opposite to rarity, whereby they contain such a quantity of matter under such a bulk.

Accordingly, a body is said to have double or triple the density of another body, when their bulk being equal, the quantity of matter is in the one double or triple the quantity of matter in the other.

DENSITY of the Air, is a property that has employed the later philosophers, since the discovery of the Torricellian experiment.

It is demonstrated, that in the same vessel, or even in vessels communicating with each other, at the same distance from the centre, the air has every where the same density. The density of air, *ceteris paribus*, increases in proportion to the compressing powers. Hence the inferior air is denser than the superior; the density, however, of the lower air is not proportional to the weight of the atmosphere on account of heat and cold, and other causes perhaps, which make great alterations in density and rarity. However, from the elasticity of the air, its density must be always different at different heights from the earth's surface; for the lower parts being pressed by the weight of those above, will be made to accede nearer to each other, and the more so as the weight of the incumbent air is greater. Hence the density of the air is greatest at the earth's surface, and decreases upwards in geometrical proportion to the altitudes taken in arithmetical progression.

If the air be rendered denser, the weight of bodies in it is diminished; if rarer, increased, because bodies lose a greater part of their weight in denser than in rarer mediums. Hence, if the density of the air be sensibly altered, bodies equally heavy in a rarer air, if their specific gravities be considerably different, will lose their equilibrium in the denser, and the specifically heavier body will preponderate. See **PNEUMATICS**.

DENTALIUM, in natural history, a shell-fish belonging to the order of *vermes testacea*. The shell consists of one tubulous straight valve, open at both ends. There are eight species, distinguished by the angles, striae, &c. of their shells.

DENTARIA, **TOOTH-WORT**, or *Tooth-violet*: A genus of the *filiquosa* order, belonging to the *tetradynamia* class of plants; and in the natural method ranking under the 39th order, *Siliquose*. The filiqua parts with a spring, and the valves roll spirally backwards; the stigma is emarginated; the calyx closing longitudinally. There are three species, all of them hardy perennials; producing annual stalks 12 or 18 inches high, adorned with many-lobed leaves, and spikes of quadrupetalous cruciform flowers of a red or purple colour. They delight in shady places; and are propagated either by seeds or parting the roots. The seeds may be sown in autumn or early in the spring, in a shady border of light earth; and when the plants are three inches high, they may be planted where they are to remain. The time for parting the roots is in October or November, or early in the spring.

DENTATUS (Curius), a renowned disinterested Roman general, whose virtues render him more me-

morable than even his great military reputation, flourished 272 years B. C. He was thrice consul; he conquered the Samnites, Sabines, and Lucanians; and gave each citizen 40 acres of land, allowing himself no more. The ambassadors of the Samnites making him a visit, found him boiling turnips in a pipkin; upon which they offered him gold to come over to their interest; but he told them, his design was not to grow rich, but to command those who were so. He defeated Pyrrhus near Tarentum, and received the honour of a triumph.

DENTELLA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants. The calyx is a five-parted perianthium, with small subulated leaves; the stamina five short subulated filaments; the antheræ small; the pericarpium a globular, bilocular capsule; the seeds egg-shaped, and very numerous.

DENTILES, or **DENTILS**, in architecture, an ornament in corniches bearing some resemblance to teeth, particularly used in the Ionic and Corinthian orders. See **ARCHITECTURE**.

DENTIFRICE, in medicine, a remedy for the teeth. There are various kinds; generally made of earthy substances finely pounded, and mixed with alum, or some other saline substances: but these are pernicious on account of their wearing away the enamel of the teeth, but more especially by the septic quality with which these earthy substances are endowed. On this account, a portion of Peruvian bark finely pounded is now commonly added, which answers the double purpose of cleaning the teeth, and preserving them afterwards from corruption.

DENTISCALPRA, in surgery, an instrument for scouring yellow, livid, or black teeth; to which being applied near the gums, it scrapes off the foul morbid crust.

DENTITION, the breeding or cutting the teeth in children. See (*Index* subjoined to) **MEDICINE**.

DENUNCIATION, a solemn publication or promulgation of any thing.

All vessels of enemies are lawful prizes, after denunciation or proclamation of war. The design of the denunciation of excommunicated persons is, that the sentence may be the more fully executed by the person's being more known.

DENUNCIATION at the Horn, in Scots Law. See **LAW**, Part III. No. clxvi. 14.

DENYS (the Little). See **DIONYSIUS**.

DEOBSTRUENTS, in pharmacy, such medicines as open obstructions. See **DETERGENT**.

DEODAND, in our customs, a thing given or forfeited as it were to God, for the pacification of his wrath in a case of misadventure, whereby a Christian soul comes to a violent end without the fault of any reasonable creature.

As, if a horse strike his keeper and kill him; if a man, in driving a cart, falls so as the cart-wheel runs over him, and presses him to death; if one by felling a tree, and gives warning to the standers by to look to themselves, yet a man is killed by the fall thereof; in the first place, the horse; in the second, the cart-wheel, cart, and horses; and in the third, the tree, is *Deo dandus*, "to be given to God," that is, to the king, to be distributed to the poor by his almoner, for expiation of this

Dentella
||
Deodand.

Dephleg- this dreadful event; though effected by irrational, nay, mation, senseless and dead creatures.

Dephlogi-
sticated
Air.

Omnia quæ morientur ad mortem sunt Deodanda :
What moves to death, or kills him dead,
Is Deodand, and forfeited.

This law seems to be an imitation of that in Exodus, chap. xxi. "If an ox gore a man, or a woman, with his horns, so as they die; the ox shall be stoned to death, and his flesh not be eat; so shall his owner be innocent."

Fleta says, the Deodand is to be sold, and the price distributed to the poor, for the soul of the king, his ancestors, and all faithful people departed this life.

DEPHLEGMATION, is an operation by which the superabundant water of a body is taken from it; and it is principally effected by evaporation or distillation. Dephlegmation is also called *concentration*, particularly when acids are the subject. See CONCENTRATION.

DEPHLOGISTICATED, in chemistry, anything deprived of the phlogiston supposed to be contained in it.

DEPHLOGISTICATED Air, an invisible elastic fluid, of somewhat greater specific gravity than that of the common atmosphere, and capable of supporting animal life and flame, for a much longer time than the air we commonly breathe.

This fluid was first discovered by Dr Priestley, and a very short time after by Mr Scheele, who appears to have been entirely unacquainted with what the Doctor had done. The methods of making it artificially are enumerated under the article AEROLOGY; here we shall make some observations on the way in which nature seems to accomplish the same end. Under that article, as well as that of FIXED Air, and others connected with them, it has been observed, that this kind of air becomes convertible into fixed air by the addition of a certain proportion of phlogiston or charcoal; and that these two ingredients may be again separated by certain means; the dephlogisticated air assuming its proper state, and the charcoal its own native form. A great number of experiments also are there related concerning the effects of vegetables in purifying tainted air, and their emission of the dephlogisticated kind; which has been thought to indicate, that vegetation is probably one of the methods by which nature supplies the great quantity of this fluid necessary for the purposes of animal life. This was suggested by an experiment of Dr Priestley, who had discovered that pump-water, on being exposed to the light of the sun, soon began to emit pure air; and that, after some days, a quantity of green matter accumulated on the sides of the vessel. This was naturally supposed to be of the vegetable kind, till Sir Benjamin Thomson found it to consist of a number of very minute animals. Upon this discovery, he disputed the commonly received opinion, that vegetation is employed by nature as a purifier of the atmospherical air. He likewise opposed the conclusion drawn from Dr Ingenhousz's experiments, who had observed that fresh leaves of plants immersed in water, and exposed to the light, emitted a vast quantity of dephlogisticated air. Sir Benjamin justly observed, that a leaf certainly ceased to vegetate after being separated from the plant on which it grew: and therefore the emission of this kind of air could by no means be ascribed to

vegetation: as a more decisive proof of which, he likewise urged, that leaves, after being entirely dead and withered, would notwithstanding emit dephlogisticated air for a very considerable time. Thus matters seemed to be rendered doubtful; but by an attentive observation of all circumstances relating to these experiments, we shall find that considerable light will be thrown upon the subject.

In the first place, we are to consider that the light of the sun, or at least a very strong light of some kind, is necessary in all these productions of dephlogisticated air; for if the apparatus is set in a very dark place, little will be formed, and that of a bad quality. So ignorant are we of the nature of this mysterious fluid, that scarce any inquiry has been made into its mode of operation in producing dephlogisticated air. By some the element of light has been supposed to be phlogiston itself, or some modification of it: but since the discovery of the identity of phlogiston and charcoal, it is probable that this opinion will not be held by many. One experiment, however, commonly brought in favour of this supposition, deserves particular attention. This is the property which light has of giving a black colour to the calces of silver; a phenomenon so remarkable, that it has been imagined an indubitable proof of the identity of light and phlogiston. In like manner, the pure and dephlogisticated spirit of nitre is found to be converted into the phlogisticated and smoking kind by exposure to the solar rays. The extensive diffusion of the substance called *phlogiston*, however, is now so well known, that we may reasonably conclude, that in these experiments it was contained in the ingredients themselves, and not in the light. Thus when silver is precipitated by chalk, and the mass turns black on exposure to the sun's rays, we are very sure that the chalk contains phlogiston; and that there is an attraction between the metallic calx and this principle: but we are by no means ascertained of the nature of light, as not being in any manner of way the subject of our investigation, except by observing its effects. As in all other cases, therefore, where light is concerned, we can only say that such a thing is the effect of the operation of light, and not the substance of the element made visible, or converted into some other thing; we have no reason, in this case, to say, that the blackening of the metallic calx is any other than an effect of the light's operation, and not the detention of any part of its substance. This operation may be easily conceived to be the promoting of the union of the phlogiston and calx, which we know that light has a great tendency to do at any rate, when we augment its action in such a manner as to make it become fire. The tendency of light, therefore, to promote an union betwixt phlogiston and other substances, will explain this and many other experiments in a very easy manner. In the case of chalk and calx of silver, the action of the light enables the calx to attract the phlogiston of the chalk, and thus become black. If the calx is not precipitated by chalk, but by an alkali, it must be in contact either with air, water, or some other fluid. All these undoubtedly contain phlogiston. With regard to air, it has not been denied that it is a general receptacle of all the decayed and volatile parts of vegetables and animals; that it contains vast quantities of inflammable air, which are constantly emitted from

Dephlogi-
sticated Air.

Dephlogi-
ficated Air.

from various parts of the earth; and, according to the Phlogistians, that fluid called *phlogisticated air*, which constitutes the other part of the fluid we breathe, likewise contains a quantity of the same matter. We are not to be surprised therefore that, in the case of the calx of silver, some of these substances should be obliged to part with a little of their phlogiston sufficient to blacken the metallic earth. In order to prove that *light* and phlogiston are the same, the experiment ought to succeed in a perfect vacuum, of which there is no probability; though indeed it has never been tried that we know of. In like manner, when spirit of nitre is rendered high coloured and smoking by exposure to the sun in a glass, the phlogiston may come either from the glass itself, which is now found to contain phlogiston, or from the quantity of air which is necessary to be left in the glass, in order to make the experiment succeed.

Thus we may reasonably suppose the blackening of the calx of silver, and the rendering clear spirit of nitre high coloured, to proceed only from the separation of phlogiston by means of light, and its consequent attraction by the calx or acid; and in other cases, where any similar effect is observed by the exposure of bodies to that element, we are to suppose that it is occasioned by the detachment of phlogiston from one substance, and its attachment to another. In the case of the emission of dephlogisticated air by means of light, therefore, we may, by reasoning analogically, conclude, that it is occasioned by the absorption of phlogiston by the substance which is said to emit the air.

Before this matter, however, can be determined exactly, we ought to be well acquainted with the composition of dephlogisticated air itself; and indeed, without this, it seems almost in vain to speak upon the subject. But, notwithstanding the labours and ingenuity of modern aerologists, this point has not been in any degree settled. On examination, it is found to consist of an invisible fluid which does not appear to gravitate, and which in all probability is no other than elementary fire, and of another substance equally invisible, but capable of attaching itself to certain bodies, particularly iron, and adding to its weight very considerably. On attempting to procure this substance by itself, we find the attachment so strong, that no force of fire can separate them. In attempting a decomposition by means of the electric spark, all that has been yet done, even with the greatest power of electricity excited by Van Marum's new machine, is to make it lose some part of its bulk, the remainder appearing by the eudiometer to have undergone no change. Dr Priestley, in his sixth volume of *Experiments on Air*, acquiesces in the opinion suggested to him by Mr Watt, that the air in question is nothing else but one of the component parts of water united with the element of heat. Allowing this to be just, and indeed there is no experiment hitherto published by which it can be contradicted, the natural method of the production of dephlogisticated air from water may be easily explained. This only requires us to suppose, that the substances immersed in the water, are by the action of the sun's light made to attract part of the phlogiston of the water; in consequence of which, the dephlogisticated part of that element, instantly being

volatilized by the light and heat of the sun (for heat is necessary for the production as well as light), assumes the properties of dephlogisticated air. But why, it may be asked, does water of itself emit dephlogisticated air without any substance whatever immersed in it? or, after certain substances have been immersed in it, by which this emission is promoted, why does the production of air stop with regard to any particular substance, and any determined quantity of water? Thus, it may be said, if any quantity of water, suppose a pint, yields one inch of cubic air by the immersion of a certain substance into it, why does not this substance attract from it all the phlogiston it is capable of absorbing? Instead of this, the water appears, by the colour it acquires, to be more phlogisticated than before; and the substance immersed, by being put into fresh water, will immediately occasion the emission of new quantities of air, and this for several times running. But to this it may be replied, that though the substance immersed attracts the phlogiston of the water, the latter will part with it only to a certain degree; and it is well known, that when two substances are united to the point of saturation by chemical attraction, the abstraction of a part of one of them will increase the attraction betwixt the remainder to a great degree. Though the substance immersed in the fluid, therefore, has originally a greater attraction for the phlogiston of the water than the dephlogisticated part of the element itself; yet as the one gradually augments, and the other diminishes, a balance soon takes place. With regard to the green colour generally assumed by the water after such experiments, it most probably proceeds from an accumulation of some terrestrial particles partly supplied by the immersed substance, or perhaps from a disposition to generate the green matter observed by Dr Priestley. That the substance immersed in the water does really part with some particles, is evident, because the water smells of it, as when raw silk is made use of; nor can we suppose that any vegetable or animal substance, such as are found to be alone fit for these experiments, can endure a long maceration in water, without parting with a considerable quantity of their component parts. Indeed, under the article CHARCOAL, it is shown that this body, though now allowed to be pure phlogiston, or the next thing to it, has the power of separating other phlogistic matter, probably such as is more impure, from different substances. Hence its property of whitening tartar, purifying malt spirits, &c. It is not unreasonable, therefore, to suppose, that a dead leaf, though a very phlogistic substance, may have the power of attracting more phlogiston from the water, and thus allowing part of that element to be changed into dephlogisticated air; while, in lieu of the phlogiston attracted from the water, it diffuses a certain portion of its own substance through the fluid, and thus gives it the colour in question. With regard to the other difficulty, viz. that water, when exposed to the solar rays, will emit dephlogisticated air without any thing immersed in it, it may be accounted for from the ease with which the dephlogisticated part of the water is volatilized; so that the attraction of the other is not able to detain it. This we find exemplified in several chemical experiments, as when a volatile alkali is joined with any of the more fixed acids; for in these cases the alkali,

not.

Dephlogi-
ficated Air

notwithstanding the mutual attraction betwixt it and the acid, will be made to fly off by a strong heat.

On the supposition that dephlogisticated air is composed of elementary fire and one of the constituent parts of water, there is very little difficulty in accounting for the origin of the immense quantity necessary to supply the animal creation with it. Under the article DAMPS, it has been shown that a vast quantity of fixed air is continually elaborated in the bowels of the earth. This is composed entirely of dephlogisticated air, compounded with a certain portion of phlogiston. Part of this fixed air must be undoubtedly evaporating constantly from the surface, and would as certainly infect the lower parts of the atmosphere, were there not some natural causes for its decomposition. One of these undoubtedly is the absorption of the phlogistic part by vegetables, which under the article AGRICULTURE is shown to be their proper food. But when the phlogiston is absorbed, a great quantity of dephlogisticated air is prepared, which supplies the deficiency occasioned by the respiration of animals. It must likewise be observed, that after the dephlogisticated air has been spoiled either by respiration or the support of flame, it is not for that reason entirely destroyed, but only converted into fixed air, and consequently may again be purified as before.

It may be likewise reasonably supposed, that in cases where vegetation does not take place, and in spring before the plants begin to exert their vegetative powers, and in autumn, or the beginning of winter, when they decay, the vegetable soil itself may perform this office: and indeed the circumstance of fresh vegetable mold affording an agreeable smell when turned up, as is mentioned under the article AGRICULTURE, seems to be a considerable confirmation of this.

The property which water has of absorbing fixed air, and also phlogiston, may likewise induce us to suppose that it acts as a purifier, not only of the common atmosphere, but of that which issues from the earth; and hence some waters, particularly that of the ocean, are found to contain air of a purer kind than that of the atmosphere.

As light, however, is an indispensable requisite in all these cases, a difficulty still remains concerning the production of dephlogisticated air in winter, when the light and heat are so much diminished. In this season, indeed, it is probable that a quantity will be produced greatly inferior to that which the summer affords: but here we may very reasonably have recourse to the immense magazine of the atmosphere itself; which, from the mere circumstance of quantity, must be much more than sufficient to answer the expences of one season; especially when we consider, that in summer a superabundant quantity is certainly produced. Add to this, that in extreme cold, fixed air seems not only to be less noxious than at other times, but even necessary for the preservation of health*. We must likewise consider, that during the winter season there will be a constant flux of the cold air of the northern and southern regions towards the equator; and this, however imperceptible to the inhabitants, will keep up a constant circulation of atmospherical fluid, so that there cannot be any stagnation even in the calmest weather and most severe and long continued frosts.

Soon after Dr Priestley began his experiments on

air, he found that the red colour of the blood depends on the air; that by coming in contact with it, the black venous blood became in a very short time of a beautiful florid colour; and that even the under side of a clot of blood, by exposure to the air, will lose its disagreeable dark colour, and assume the same with that of blood newly drawn. These effects are entirely to be attributed to the dephlogisticated part; and his theory of respiration being a phlogistic process, seems to be fully confirmed by the discovery of the composition of fixed air. For, as fixed air is known to be composed of phlogiston and dephlogisticated air, we cannot suppose this phlogiston to be derived from any other source than the lungs. The doctor in this theory likewise obviates an objection that might naturally occur, that the air has not immediate access to the blood in the lungs, because of the thin membranes of the vessels which intervene. But, from his experiments, it appears that this is no obstacle. The serum of blood he finds to be capable of transmitting dephlogisticated air, or at least of propagating this effect through a very considerable thickness of its own substance, as well as through bladders moistened with it; a property which does not belong to any other animal fluid.

As dephlogisticated air is now known to be the immediate support of animal life, it has naturally been supposed that it might answer valuable purposes in medicine; but the difficulty of procuring it in sufficient quantity has hitherto prevented these hopes from being realized, excepting only in cases of drowning, where it is said to produce very great effects. With regard to any method of preparing it, no farther discovery has been made than what is suggested under the article AEROLOGY.

DEPILATORY MEDICINES, those applied in order to take off the hair: such are lime and orpiment known to be, but which ought to be used with great caution.

DEPONENT, in Latin grammar, a term applied to verbs which have active significations, but passive terminations or conjugations, and want one of their participles passive.

DEPONENT, in the law of Scotland, a person who makes a deposition. See DEPOSITION.

DEPOPULATION, the act of diminishing the number of people in any country, whether by war or bad politics.

DEPORTATION, a sort of banishment used by the Romans, whereby some island or other place was allotted to a criminal for the place of his abode, with a prohibition not to stir out of the same on pain of death.

DEPOSIT, among civilians, something that is committed to the custody of a person, to be kept without any reward, and to be returned again on demand.

DEPOSITARY, in law, a person intrusted as keeper or guardian of a deposit.

DEPOSITION, in law, the testimony given in court by a witness upon oath.

DEPOSITION is also used for the sequestrating or depriving a person of his dignity and office.

This deposition only differs from abdication, in that the latter is supposed voluntary, and the act of the dignitary or officer himself; and the former of compulsion, being the act of a superior power, whose authority

Dephlogi-
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Deposition.

*See Fixed
Air.

Deprecation || Depth. rity extends thereto. Some say the deposition, and some the abdication, of King James II.

Deposition does not differ from deprivation: we say, indifferently, a deposed, or deprived bishop, official, &c.

Deposition differs from suspension, in that it absolutely and for ever strips or divests a priest, &c. of all dignity, office, &c. whereas suspension only prohibits, or restrains, the exercise thereof.

Deposition only differs from degradation, in that the latter is more formal, and attended with more circumstances, than the former; but in effect and substance they are the same; those additional circumstances being only matter of show, first set on foot out of zeal and indignation, and kept up by custom, but not warranted by the laws or canons. See DEGRADATION.

DEPRECATION, in rhetoric, a figure whereby the orator invokes the aid and assistance of some one; or prays for some great evil or punishment to befall him who speaks falsely, either himself or his adversary.

DEPRECATORY, or DEPRECATIVE, in theology, a term applied to the manner of performing some ceremonies in the form of prayer.

The form of absolution is deprecative in the Greek church, being conceived in these terms, *May God absolve you*: whereas it is in the declarative form in the Latin church, and in some of the reformed churches, *I absolve you*.

DEPRESSION of the POLE. When a person sails or travels towards the equator, he is said to depress the pole; because as many degrees as he approaches nearer the equator, so many degrees will the pole be nearer the horizon. This phenomenon arises from the spherical figure of the earth.

DEPRESSOR, or DEPRIMENS, in anatomy, a name applied to several muscles, because they depress the parts they are fastened to.

DEPRIVATION, in the common law, the act of bereaving, divesting, or taking away a spiritual promotion or dignity: as when a bishop, vicar, prebend, or the like, is deposed or deprived of his preferment, for some matter, or fault, in fact, or in law. See DEPOSITION.

Deprivation is of two kinds; *a beneficio, et ab officio*.

DEPRIVATION *a beneficio* is, when for some great crime a minister is wholly and for ever deprived of his living or preferment: which differs from suspension, in that the latter is only temporary.

DEPRIVATION *ab officio*, is when a minister is for ever deprived of his order: which is the same, in reality, with what we otherwise call *deposition* and *degradation*; and is usually for some heinous crime deserving death, and is performed by the bishop in a solemn manner. See DEGRADATION.

DEPTFORD, a town three miles east of London, on the southern banks of the Thames; chiefly considerable for its fine docks for building ships, and the king's yard. E. Long. 0. 4. N. Lat. 51. 30.

DEPTH, the measure of any thing from the surface downwards.

Measuring of DEPTHS by the Barometer, depends on the same principles on which heights are measured by No. 100.

the same instrument. The mensuration of depths being chiefly applied to mines, is still more precarious than the measurement of heights, on account of the various kinds of vapours with which these subterranean regions are filled. But for a particular account of these difficulties, with the best methods of obviating them, see the articles BAROMETER and MINES.

DEPTH of a Squadron, or battalion, is the number of men in a file; which in a squadron is three, and in a battalion generally six. See SQUADRON, FILE, &c.

We say, the battalion was drawn up six deep; the enemy's horse was drawn up five deep.

DEPURATION, is the freeing of any fluid from its heterogeneous matter or feculence. It is of three kinds: 1. Decantation; which is performed by letting the liquid to be depurated stand for some time in a pretty deep vessel, till the gross sediment has fallen to the bottom; after which the clear fluid is poured off. 2. Despumation; which is performed by means of the whites of eggs, or other viscid matter, and is also called CLARIFICATION. 3. Filtration. See CHEMISTRY, n° 69.

DEPURATORY FEVER, a name given by Sydenham to a fever which prevailed much in the years 1661, 1662, 1663, and 1664. He called it depuratory, because he supposed that nature regulated all the symptoms in such a manner, as to fit the febrile matter, prepared by proper concoction, for expulsion in a certain time, either by a copious sweat or a freer perspiration.

DEPUTATION, a mission of select persons, out of a company or body, to a prince or assembly, to treat of matters in their name.

DEPUTY, a person sent upon some business by some community.

DEPUTY is also one that exercises an office in another's right; and the forfeiture or misdemeanour of such deputy shall cause the person whom he represents to lose his office.

DEPUTATUS, among the ancients, a name applied to persons employed in making armour; and likewise to brisk active people, whose business was to take care of the wounded in engagements, and carry them off the field.

DER, a syllable frequently prefixed to the names of places in England. It is said to signify that such were formerly places where wild beasts herded together, so called from the Saxon *deop, fera*, unless the situation was near some river.

DERBEND, a strong town of Asia, in Persia, said to have been founded by Alexander the Great. The walls are built with stones as hard as marble; and near it are the remains of a wall which reached from the Caspian to the Black Sea. It is seated near the Caspian Sea, at the foot of Mount Caucasus. E. Long. 50. 0. N. Lat. 42. 8.

DERBY, the capital of a county of the same name in England. It is thought to have received its name from being formerly a park or shelter for deer; and what makes this supposition more probable is, that the arms of the town consist of a buck couchant in a park. It is very ancient, having been a royal borough in the time of Edward the Confessor. At present it is a neat town, very populous, and sends two members to parliament. In digging for foundations of houses, human

Depuration || Derby.

Derbyshire. man bones of a monstrous size have sometimes been found. The trade consists in wool, corn, malt, and ale, of which considerable quantities are sent to London. Here also is that curious machine for throwing silk, the model of which Sir Thomas Lombe, at the hazard of his life, brought from Italy. Before that time, the English merchants used to purchase thrown silks of the Italians for ready money. But by the help of this wonderful machine, one hand-mill will twist as much silk as 50 people could do without it. It works 73,726 yards of silk every time the water-wheel goes round, which is thrice in a minute. The house in which it is contained is five or six stories high, and half a quarter of a mile in length. When Sir Thomas's patent expired in 1732, the parliament were so sensible of the value and importance of the machine, that they granted him a further recompence of 14,000 l. for the hazard and expence he had incurred in introducing and erecting it, upon condition he should allow an exact model of it to be taken. This model is deposited in the Tower of London, in order to prevent so curious and important an art from being lost. The town of Derby is watered by a river and a brook; the latter of which has nine bridges over it, the former only one. Derby gives title of Earl to the noble family of Stanley, being the second earldom in England. W. Long. 1. 45. N. Lat. 52. 57.

DERBY-SHIRE, a county of England, bounded on the east by Nottinghamshire, and a part of Leicestershire, which last bounds it also on the south. On the west it is bounded by Staffordshire, and part of Cheshire; and on the north by Yorkshire. It is near 40 miles in length from south to north; about 30 in breadth on the north side, but on the south no more than six.—The air is pleasant and healthful, especially on the east side; but on the west, about the peak, it is sharper and more subject to wind and rain. The soil is very different in different parts of the country. In the east and south parts it is very fruitful in all kinds of grain; but in the west, beyond the Derwent, it is barren and mountainous, producing nothing but a little oats. There is, however, plenty of grass in the valleys, which affords pasture to a great number of sheep. This part of the country is called the *Peak*, from a Saxon word signifying an eminence. Its mountains are very bleak, high, and barren; but extremely profitable to the inhabitants. They yield great quantities of the best lead, antimony, iron, tycite-stones, grind-stones, marble, alabaster, a coarse sort of crystal, azure, spar, and pit-coal. In these mountains are two remarkable caverns, named *Pool's Hole*, and *Elden-Hole*; for a description of which, see these articles.

DEREHAM, a town of Norfolk in England, situated in E. Long. 1. 0. N. Lat. 52. 40. It is pretty large, and the market is noted for woollen yarn.

DERELICTS, (from *de*, and *relinquo*, "I leave"), in the civil law, are such goods as are wilfully thrown away, or relinquished by the owner.

DERELICT is also applied to such lands as the sea receding from leaves dry, and fit for cultivation. If they are left by a gradual recess of the sea, they are adjudged to belong to the owner of the adjoining lands; but when an island is formed in the sea, or a

large quantity of new land appears, such derelict lands belong to the king.

DERHAM (Doctor William), a very celebrated English philosopher and divine, born in 1657. In 1682, he was presented to the vicarage of Wargrave in Berkshire; and in 1689, to the valuable rectory of Upminster, in Essex; which latter lying at a convenient distance from London, afforded him an opportunity of conversing and corresponding with the greatest virtuosos of the nation. Applying himself there with great eagerness to natural and experimental philosophy, he soon became a distinguished member of the Royal Society, whose Philosophical Transactions contain a great variety of curious and valuable pieces, the fruits of his laudable industry. In his younger years he published his *Artificial Clockmaker*, which has been often printed: and in 1711, 1712, and 1714, he preached those sermons at Boyle's lecture, which he afterwards digested under the well known titles of *Physico-Theology* and *Astro-Theology*, and enriched with valuable notes and copper-plates. The last thing he published of his own composition was *Christo-Theology*, a demonstration of the divine authority of the Christian religion, being the substance of a sermon preached at Bath in 1729. This great good man, after spending his life in the most agreeable as well as improving study of nature, died at Upminster in 1735; and besides many other works, left a valuable collection of curiosities, particularly specimens of birds and insects of this island.—It may be necessary just to observe, that Dr Derham was very well skilled in medical as well as in physical knowledge; and was constantly a physician to the bodies as well as the souls of his parishioners.

DERIVATION, in medicine, is when a humour which cannot conveniently be evacuated at the part affected, is attracted from thence, and discharged elsewhere; thus a blister is applied to the neck to draw away the humour from the eyes.

DERIVATION, in grammar, the affinity one word has with another, by having been originally formed from it. See **DERIVATIVE**.

DERIVATIVE, in grammar, a word which takes its origin from another word, called its *primitive*.—Such is the word derivative itself, which takes its origin from the primitive *rivus*, a rivulet or channel, out of which lesser streams are drawn; and thus *manhood*, *deity*, *lawyer*, &c. are derived from *man*, *deus*, *law*, &c.

DERMESTES, in zoology, a genus of insects belonging to the order of coleoptera. The antennæ are clavated, with three of the joints thicker than the rest; the breast is convex; and the head is inflected below the breast. The species are pretty numerous.

1. The lardarius is of an oblong form and of a dim black colour, easily distinguishable by a light brown stripe that occupies transversely almost the anterior half of the elytra. That colour depends on small grey hairs situated on that part. The stripe is irregular at its edges, and intersected through the middle by a small transversal streak of black spots, three in number on each of the elytra, the middlemost of which is somewhat lower than the rest, which gives the black streak a serpentine form. Its larva, that is oblong, somewhat

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hairy, and divided into segments alternately dark and light coloured, gnaws and destroys preparations of animals preserved in collections, and even feeds upon the insects; it is also to be found in old bacon. 2. The domesticus varies greatly in size and colour, some being found of a dark brown, others of a much lighter hue. The form of it is oblong, almost cylindrical. The elytra are striated; the thorax is thick and rather gibbous. This little animal, when touched, draws in its head under its thorax, and its feet beneath its abdomen, remaining so motionless that one would think it dead. This is the same insect which makes in wooden furniture those little round holes that reduce it to powder. 3. The violaceus is a beautiful little insect: its elytra are of a deep violet blue. The thorax is covered with greenish hairs, the legs are black. The whole animal being of a glittering brilliancy renders it a pleasing object. The larva, as well as the perfect insect, inhabits the bodies of dead animals. 4. The fumatus is of a light brown, except the eyes, which are black. It is, however, sometimes more or less deep. The thorax is margined, and the insect has the whole carriage of a scarabæus; but its antennæ have the character of those of the dermestæ. This little creature is found in dung. It also frequently finds its way into houses. 5. The ferrugineus is the largest of the genus; its colour is a rusty iron, having many oblong, velvety, black spots upon the elytra, which gives the insect a gloomy, yet elegant appearance. The antennæ differ from the preceding species; the three last articulations being considerably longer, thicker, and not perforated.

There are 25 other species, distinguished by their colour.—Many varieties of this genus, as well as the larvæ, are to be met with in dried skins, bark of trees, wood, seeds, flowers, the carcases of dead animals, &c.—The lardarius, so destructive to birds, insects, and other subjects of natural history preserved in cabinets, is to be killed by arsenic.

DERNIER RESSORT. See RESSORT.

DEROGATION, an act contrary to a preceding one, and which annuls, destroys, and revokes it, either in whole or in part.

DEROGATORY, a clause importing derogation. A derogatory clause in a testament, is a certain sentence, cipher, or secret character, which the testator inserts in his will, and of which he reserves the knowledge to himself alone, adding a condition, that no will he may make hereafter is to be reckoned valid, if this derogatory clause is not inserted expressly and word for word. It is a precaution invented by lawyers against latter-wills extorted by violence, or obtained by suggestion.

DERP, a town of Livonia, and capital of a palatinate of the same name, with a bishop's see, and an university. It is subject to the Russians, and lies near the river Ambeck. E. Long. 31. 55. N. Lat. 30. 40.

DERTONA, DERTON, or DERTON (anc. geog.), a colony of the Cispadana; called *Julia Augusta* on inscriptions and coins; midway between Genoa and Placentia, and situated to the east of the Tanarus in Liguria. Now Tortona, a city of Milan. E. Long. 9. 12. N. Lat. 45.

DERTOSA, (anc. geog.) the capital of the Hercaones, in Tarraconensis, or the Hither Spain: a mu-

nicipum and colony; surnamed *Julia Ilergavonia* (Coin.) *Derventio*, *Dertofani*, the people. Now Tortosa, in Catalonia, on the Ebro. E. Long. 15. N. Lat. 40. 45.

DERVENTIO, (anc. geog.), a river of the Brigantes in Britain. Now the Darwent, in the east of Yorkshire, falling into the Ouse. Also a town of the Brigantes on the same river. Now called *Auldby*, seven miles from York, to the north east (Camden).

DERVIS, or DERVICH, a name given to a sort of monks among the Turks, who lead a very austere life, and profess extreme poverty, though they are allowed to marry. The word is originally Persian, *درویش*, signifying a "beggar," or person who has nothing: and because the religious, and particularly the followers of Mevelava, profess not to possess any thing, they call both the religious in general, and the Mevelavites in particular, *Dervises* or *Derviches*.

The dervises, called also *Mevelavites*, are a Mahometan order of religious; the chief or founder whereof was one Mevelava. They are now very numerous. Their chief monastery is that near Cognia in Natolia, where the general makes his residence, and where all the assemblies of the order are held; the other houses being all dependent on this, by a privilege granted to this monastery under Ottoman I.

The dervises affect a great deal of modesty, patience, humility, and charity. They always go bare-legged and open-breasted, and frequently burn themselves with hot irons, to inure themselves to patience. They always fast on Wednesdays, eating nothing on those days till after sun-set. Tuesdays and Fridays they hold meetings, at which the superior of the house presides. One of them plays all the while on a flute, and the rest dance, turning their bodies round and round with the greatest swiftness imaginable. Long custom to this exercise from their youth has brought them to such a habitude, that it does not discompose them at all. This practice they observe with great strictness, in memory of Mevelava their patriarch's turning miraculously round as they pretend, for the space of four days, without any food or refreshment; his companion Hamfa playing all the while on the flute: after which he fell into an ecstasy, and therein received wonderful revelations for the establishment of his order. They believe the flute an instrument consecrated by Jacob and the shepherds of the Old Testament, because they sang the praises of God upon them. They profess poverty, chastity and obedience, and really observe them while they remain dervises; but if they choose to go out and marry, they are always allowed.

The generality of dervises are mountebanks: some apply themselves to legerdemain, postures, &c. to amuse the people; others give in to sorcery and magic: but all of them, contrary to Mahomet's precept, are said to drink wine, brandy, and other strong liquors, to give them the degree of gaiety their order requires.

Beside their great saint Mevelava, there are particular saints honoured in some particular monasteries: as Kiderele, greatly revered in the monasteries of Egypt, and held by some to be St George; and by others, with more probability, the prophet Elias.

The dervises are great travellers; and, under pretence of preaching, and propagating their faith, are continually passing from one place to another: on which account they have been frequently used as spies.

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There are also dervises in Persia, called in that country *Abdals*, q. d. *servants of God*. They lead a very penurious, austere life, and preach the Alcoran in the streets, coffee-houses, and wherever they can meet with auditors. The Persian dervises retail little but fables to the people, and are in the utmost contempt among the men of sense and letters.

There are in Egypt two or three kinds; those that are in convents, are in a manner of the religious order, and live retired; though there are of these some who travel and return again to their convents. Some take this character, and yet live with their families, and exercise their trades: of this kind are the dancing dervises at Damascus, who go once or twice a-week to a little uninhabited convent, and perform their extraordinary exercises; these also seem to be a good people: but there is a third sort of them who travel about the country, and beg, or rather oblige people to give, for whenever they found their horn something must be given them. The people of these orders, in Egypt, wear an octagonal badge, of a greenish white alabaster, at their girdles, and a high stiff cap without any thing round it.

DESAGULIERS (John Theophilus), who introduced the practice of reading public lectures in experimental philosophy in the metropolis, and who made several improvements in mechanics; was the son of the reverend John Defaguliers, a French protestant refugee, and was born at Rochelle in 1683. His father brought him to England an infant; and at a proper age placed him at Christ-church College, Oxford: where he succeeded Dr Keil in reading lectures on experimental philosophy at Hart Hall. The magnificent duke of Chandos made Dr Defaguliers his chaplain, and presented him to the living of Edgeware, near his seat at Cannons; and he was afterwards chaplain to Frederic Prince of Wales. He read lectures with great success to the time of his death in 1749. He communicated many curious papers printed in the *Philosophical Transactions*; published a valuable *Course of Experimental Philosophy*, in 2 vols 4to: and gave an edition of *Gregory's Elements of Catoptrics and Dioptrics*, with an Appendix on reflecting telescopes, 8vo. He was a member of the Royal Society, and of several foreign academies.

DESART, a large extent of country entirely barren, and producing nothing. In this sense some are sandy deserts; as those of Lop, Xamo, Arabia, and several others in Asia; in Africa, those of Libya and Zara; others are stony, as the desert of Pharan in Arabia Petrea.

The *DESART*, absolutely so called, is that part of Arabia, south of the Holy Land, where the children of Israel wandered forty years.

DESCANT, in music, the art of composing in several parts. See COMPOSITION.

Descant is three-fold, viz. plain, figurative, and double.

Plain DESCANT is the ground-work and foundation of all musical compositions, consisting altogether in the orderly placing of many concords, answering to simple counterpoint. See COUNTERPOINT.

Figurative or Florid DESCANT, is that part of an air of music wherein some discords are concerned, as well, though not so much, as concords. This may be term-

ed the ornamental and rhetorical part of music, in regard that there are introduced all the varieties of points, syncopes, diversities of measures, and whatever is capable of adorning the composition.

DESCANT Double, is when the parts are so contrived, that the treble, or any high part, may be made the bass; and, on the contrary, the bass the treble.

DESCARTES. See CARTES.

DESCENDANT. The issue of a common parent, *in infinitum*, are called his descendants. See the article DESCENT.

DESCENSION, in astronomy, is either right or oblique.

Right DESCENSION, is an arch of the equinoctial, intercepted between the next equinoctial point and the intersection of the meridian, passing through the center of the object, at its setting, in a right sphere.

Oblique DESCENSION, an arch of the equinoctial, intercepted between the next equinoctial point and the horizon, passing through the center of the object, as its setting, in an oblique sphere.

DESCENT, in general, is the tendency of a body from a higher to a lower place; thus all bodies, unless otherwise determined by a force superior to their gravity, descend towards the center of the earth. See GRAVITY and MECHANICS.

DESCENT, or *Hereditary Succession*, in law, is the title whereby a man, on the death of his ancestor, acquires his estate by right of representation, as his heir at law. An heir, therefore, is he upon whom the law casts the estate immediately on the death of the ancestor; and an estate so descending to the heir is in law called the *inheritance*.

Descent is either *lineal* or *collateral*. The former is that conveyed down in a right line from the grandfather to the father, and from the father to the son, and from the son to the grandson. The latter is that springing out of the side of the line or blood; as from a man to his brother, nephew, or the like.

The doctrine of descents, or law of inheritances in fee-simple, is a point of the highest importance: (See the article FEE). All the rules relating to purchases, whereby the legal course of descents is broken and altered, perpetually refer to this settled law of inheritance, as a *datum* or first principle universally known, and upon which their subsequent limitations are to work. Thus a gift in tail, or to a man and the heirs of his body, is a limitation that cannot be perfectly understood without a previous knowledge of the law of descents in fee-simple. One may well perceive, that this is an estate confined in its descent to such heirs only of the donee as have sprung or shall spring from his body: but who those heirs are, whether all his children both male and female, or the male only, and (among the males) whether the eldest, youngest, or other son alone, or all the sons together, shall be his heir; this is a point that we must resort back to the standing law of descents in fee-simple to be informed of.

And as this depends not a little on the nature of kindred, and the several degrees of consanguinity, it will be necessary to refer the reader to the article CONSANGUINITY, where the true notion of this kindred or alliance in blood is particularly stated.

We shall here exhibit a series of rules or canons of inheritance, with illustrations, according to which, by

Descant

Descent.

Descent. the law of England, estates are transmitted from the ancestor to the heir.

1. "Inheritances shall lineally descend to the issue of the person last actually seised *in infinitum*, but shall never lineally ascend."

To understand both this and the subsequent rules, it must be observed, that by law no inheritance can vest, nor can any person be the actual complete heir of another, till the ancestor is previously dead. *Nemo est heres viventis*. Before that time, the person who is next in the line of succession is called *heir apparent*, or *heir presumptive*. Heirs apparent are such whose right of inheritance is indefeasible, provided they outlive the ancestor; as the eldest son or his issue, who must, by the course of the common law, be heirs to the father whenever he happens to die. Heirs presumptive are such, who, if the ancestor should die immediately, would in the present circumstances of things be his heirs; but whose right of inheritance may be defeated by the contingency of some nearer heir being born: as a brother or nephew, whose presumptive succession may be destroyed by the birth of a child; or a daughter, whose present hopes may be hereafter cut off by the birth of a son. Nay, even if the estate hath descended, by the death of the owner, to such a brother, or nephew, or daughter; in the former cases, the estate shall be divested and taken away by the birth of a posthumous child; and, in the latter, it shall also be totally divested by the birth of a posthumous son.

Blackst.
Comment.

We must also remember, that no person can be properly such an ancestor as that an inheritance in lands or tenements can be derived from him, unless he hath had actual seisin of such lands, either by his own entry, or by the possession of his own or his ancestor's lessee for years, or by receiving rent from a lessee of the freehold: or unless he hath what is equivalent to corporal seisin in hereditaments that are incorporeal; such as the receipt of rent, a presentation to the church in case of an advowson, and the like. But he shall not be accounted an ancestor who hath had only a bare right or title to enter or be otherwise seised. And therefore all the cases which will be mentioned in the present article, are upon the supposition that the deceased (whose inheritance is now claimed) was the last person actually seised thereof. For the law requires this notoriety of possession, as evidence that the ancestor had that property in himself, which is now to be transmitted to his heir. Which notoriety hath succeeded in the place of the ancient feudal investiture, whereby, while feuds were precarious, the vassal on the descent of lands was formerly admitted in the lord's court (as is still the practice in Scotland); and therefore received his seisin, in the nature of a renewal of his ancestor's grant, in the presence of the feudal peers: till at length, when the right of succession became indefeasible, an entry on any part of the lands within the county (which if disputed was afterwards to be tried by those peers), or other notorious possession, was admitted as equivalent to the formal grant of seisin, and made the tenant capable of transmitting his estate by descent. The seisin therefore of any person, thus understood, makes him the root or stock from which all future inheritance by right of blood must be derived; which is very briefly expressed in this maxim, *seisina facit stipitem*.

When therefore a person dies so seised, the inheritance first goes to his issue: as if there be Geoffrey, John, and Matthew, grandfather, father, and son; and John purchases lands, and dies; his son Matthew shall succeed him as heir, and not the grandfather Geoffrey; to whom the land shall never ascend, but shall rather escheat to the lord.

2. "The male issue shall be admitted before the female."—Thus sons shall be admitted before daughters; or, as our male lawgivers have somewhat uncomplaisantly expressed it, the worthiest of blood shall be preferred. As if John Stiles had two sons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; first Matthew, and (in case of his death without issue) then Gilbert shall be admitted to the succession in preference to both the daughters.

3. "Where there are two or more males in equal degree, the eldest only shall inherit; but the females all together."—As if a man hath two sons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; Matthew his eldest son shall alone succeed to his estate, in exclusion of Gilbert the second son and both the daughters; but if both the sons die without issue before the father, the daughters Margaret and Charlotte shall both inherit the estate as coparceners.

4. "The lineal descendants, *in infinitum*, of any person deceased, shall represent their ancestor; that is, shall stand in the same place as the person himself would have done had he been living."—Thus the child, grandchild, or great-grandchild (either male or female), of the eldest son, succeeds before the younger son, and so *in infinitum*. And these representatives shall take neither more nor less, but just so much as their principals would have done. As if there be two sisters, Margaret and Charlotte; and Margaret dies, leaving six daughters; and then John Stiles the father of the two sisters dies without other issue; these six daughters shall take among them exactly the same as their mother Margaret would have done, had she been living; that is, a moiety of the lands of John Stiles in coparcenary: so that, upon partition made, if the land be divided into twelve parts, thereof Charlotte the surviving sister shall have six, and her six nieces, the daughters of Margaret, one a-piece.

5. "On failure of lineal descendants, or issue, of the person last seised, the inheritance shall descend to the blood of the first purchaser; subject to the three preceding rules."—Thus, if Geoffrey Stiles purchases land, and it descends to John Stiles his son, and John dies seised thereof without issue; whoever succeeds to this inheritance must be of the blood of Geoffrey, the first purchaser of this family. The first purchaser, *perquisitor*, is he who first acquired the estate to his family, whether the same was transferred to him by sale, or by gift, or by any other method, except only that of descent.

6. "The collateral heir of the person last seised must be his next collateral kinsman of the whole blood."

First, he must be his next collateral kinsman either personally or *jure representationis*; which proximity is reckoned according to the canonical degrees of consanguinity: See CONSANGUINITY. Therefore the brother being in the first degree, he and his descendants shall exclude the uncle and his issue, who is only in

Descent.

Descent.

in the second.—Thus, if John Stiles dies without issue, his estate shall descend to Francis his brother, who is lineally descended from Geoffrey Stiles, his next immediate ancestor or father. On failure of brethren or sisters and their issue, it shall descend to the uncle of John Stiles, the lineal descendant of his grandfather George; and so on *in infinitum*.

But, secondly, the heir need not be the nearest kinsman absolutely, but only *sub modo*; that is, he must be the nearest kinsman of the *whole* blood; for if there be a much nearer kinsman of the *half* blood, a distant kinsman of the whole blood shall be admitted, and the other entirely excluded.—A kinsman of the whole blood is he that is derived, not only from the same ancestor, but from the same couple of ancestors. For as every man's own blood is compounded of the bloods of his respective ancestors, he only is properly of the whole or entire blood with another who hath (so far as the distance of degrees will permit) all the same ingredients in the composition of his blood that the other hath. Thus, the blood of John Stiles being composed of those of Geoffrey Stiles his father, and Lucy Baker his mother, therefore his brother Francis, being descended from both the same parents, hath entirely the same blood with John Stiles; or he is his brother of the whole blood. But if, after the death of Geoffrey, Lucy Baker the mother marries a second husband, Lewis Gay, and hath issue by him: the blood of this issue, being compounded of the blood of Lucy Baker (it is true) on the one part, but that of Lewis Gay (instead of Geoffrey Stiles) on the other part, it hath therefore only half the same ingredients with that of John Stiles; so that he is only his brother of the half blood, and for that reason they shall never inherit to each other. So also, if the father has two sons, A and B, by different venters or wives; now these two brethren are not brethren of the whole blood, and therefore shall never inherit to each other, but the estate shall rather escheat to the lord. Nay, even if the father dies, and his lands descend to his eldest son A, who enters thereon, and dies seised without issue; still B shall not be heir to this estate, because he is only of the half blood to A, the person last seised: but had A died without entry, then B might have inherited; not as heir to A his half-brother, but as heir to their common father, who was the person last actually seised.

The rule then, together with its illustration, amounts to this, That in order to keep the estate of John Stiles as nearly as possible in the line of his purchasing ancestor, it must descend to the issue of the nearest couple of ancestors that have left descendants behind them; because the descendants of one ancestor only are not so likely to be in the line of that purchasing ancestor as those who are descended from two.

But here a difficulty arises. In the second, third, fourth, and every superior degree, every man has many couples of ancestors, increasing according to the distances in a geometrical progression upwards, the descendants of all which respective couples are (representatively) related to him in the same degree. Thus, in the second degree, the issue of George and Cecilia Stiles and of Andrew and Esther Baker, the two grandfathers and grandmothers of John Stiles, are each in the same degree of propinquity; in the third degree, the respective issues of Walter and Christian Stiles, of

Luke and Frances Kempe, of Herbert and Hannah Baker, and of James and Emma Thorpe, are (upon the extinction of the two inferior degrees) all equally intitled to call themselves the next kindred of the whole blood to John Stiles. To which therefore of these ancestors must we first resort, in order to find out descendants to be preferably called to the inheritance? In answer to this, and to avoid the confusion and uncertainty that might arise between the several stocks wherein the purchasing ancestor may be sought for,—

7. The seventh and last rule or canon is, “That in collateral inheritances the male stocks shall be preferred to the female (that is, kindred derived from the blood of the male ancestors shall be admitted before those from the blood of the female;)—unless where the lands have in fact descended from a female.”—Thus the relations on the father's side are admitted *in infinitum*, before those on the mother's side are admitted at all; and the relations of the father's father, before those of the father's mother; and so on.

For the original and progress of the above canons, the reasons upon which they are founded, and their agreement with the laws of other nations, the curious reader may consult *Blackstone's Commentaries*, Vol. II. p. 208—237.

We shall conclude with exemplifying the rules themselves by a short sketch of the manner in which we must search for the heir of a person, as John Stiles, who dies seised of land which he acquired, and which therefore he held as a feud of indefinite antiquity. See the *Table of DESCENTS* on Plate CLVI.

In the first place succeeds the eldest son, Matthew Stiles, or his issue, (n^o 1.):—if his line be extinct, then Gilbert Stiles and the other sons respectively, in order of birth or their issue, (n^o 2.):—in default of these, all the daughters together, Margaret and Charlotte Stiles, or their issue, (n^o 3.):—On the failure of the descendants of John Stiles himself, the issue of Geoffrey and Lucy Stiles, his parents, is called in: viz. first, Francis Stiles, the eldest brother of the whole blood, or his issue, (n^o 4.):—then Oliver Stiles, and the other whole brothers respectively, in order of birth, or their issue, (n^o 5.):—then the sisters of the whole blood altogether, Bridget and Alice Stiles, or their issue, (n^o 6.):—In defect of these, the issue of George and Cecilia Stiles, his father's parents; respect being still had to their age and sex, (n^o 7.):—then the issue of Walter and Christian Stiles, the parents of his paternal grandfather, (n^o 8.):—then the issue of Richard and Anne Stiles, the parents of his paternal grandfather's father, (n^o 9.):—and so on in the paternal grandfather's paternal line, or blood of Walter Stiles, *in infinitum*. In defect of these, the issue of William and Jane Smith, the parents of his paternal grandfather's mother, (n^o 10.):—and so on in the paternal grandfather's maternal line, or blood of Christian Smith, *in infinitum*; till both the immediate bloods of George Stiles, the paternal grandfather, are spent.—Then we must resort to the issue of Luke and Frances Kempe, the parents of John Stiles' paternal grandmother, (n^o 11.):—then to the issue of Thomas and Sarah Kempe, the parents of his paternal grandmother's father, (n^o 12.):—and so on in the paternal grandmother's paternal line, or blood of Luke Kempe, *in infinitum*. In default of which,

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Deserter.

which, we must call in the issue of Charles and Mary Holland, the parents of his paternal grandmother's mother, (n^o 13.): and so on in the paternal grandmother's maternal line, or blood of Frances Holland, *in infinitum*; till both the immediate bloods of Cecilia Kempe, the paternal grandmother, are also spent.—Whereby the paternal blood of John Stiles entirely failing, recourse must then, and not before, be had to his maternal relations; or the blood of the Bakers, (n^o 14, 15, 16.), Willis's (n^o 17.), Thorpe's (n^o 18, 19.), and White's (n^o 20.); in the same regular successive order as in the paternal line.

The student should bear in mind, that during this whole process, John Stiles is the person supposed to have been last actually seized in the estate. For if ever it comes to vest in any other person, as heir to John Stiles, a new order of succession must be observed upon the death of such heir; since he, by his own seisin, now becomes himself an ancestor, or *stiles*, and must be put in the place of John Stiles. The figures therefore denote the order in which the several classes would succeed to John Stiles, and not to each other; and before we search for an heir in any of the higher figures, (as n^o 8.) we must first be assured that all the lower classes from (n^o 1. to 7.) were extinct at John Stiles's decease.

DESCENT, or *Succession*, in the law of Scotland. See LAW, Part III. No clxxx clxxxi.

DESCENT of the Crown. See SUCCESSION.

DESCENT of Dignities. A dignity differs from common inheritances, and goes not according to the rules of the common law: for it descends to the half-blood; and there is no coparcenership in it, but the eldest takes the whole. The dignity of peerage is personal, annexed to the blood; and so inseparable, that it cannot be transferred to any person, or surrendered even to the crown; it can move neither forward nor backward, but only downward to posterity; and nothing but corruption of blood, as if the ancestor be attainted of treason or felony, can hinder the descent to the right heir.

DESCENT, in genealogy, the order or succession of descendants in a line or family; or their distance from a common progenitor: Thus we say, one descent, two descents, &c.

DESCENT, in heraldry, is used to express the coming down of any thing from above; as, a lion *en descent* is a lion with his head towards the base points, and his heels towards one of the corners of the chief, as if he were leaping down from some high place.

DESCHAMPS (Francis), a French poet, born in Champagne, was the author of a tragedy entitled *Cato of Utica*, and a history of the French theatre. He died at Paris in 1747.

DESCRIPTION, in literary composition, is such a strong and beautiful representation of a thing, as gives the reader a distinct view and satisfactory notion of it. See NARRATION and Description.

DESEADA, or DESIDERARA, one of the Caribbee islands, subject to France, lying eastward of Guadaloupe.

DESERT, or DESART. See DESART.

DESERTER, in a military sense, a soldier who, by running away from his regiment or company, abandons the service.

A deserter is, by the articles of war, punishable by

death; which, after conviction, is executed upon him at the head of the regiment he formerly belonged to, with his crime written on his breast.

DESERTION, in law. See LAW, N^o clx. 24.

DESHABILLE, a French term, naturalized of late. It properly signifies a night-gown, and other necessaries, made use of in dressing or undressing. Mr — is not to be spoken with, he is yet in his *deshabille*, i. e. undressed, or in his night-gown. The word, is compounded of the primitive *de* and *s'habiller*, "to dress one's self."

DESHACHE, in heraldry, is where a beast has its limbs separated from its body, so that they still remain on the escutcheon, with only a small separation from their natural places.

DESIDERATUM, is used to signify the desirable perfections in any art or science; thus, it is a desideratum with the blacksmith, to render iron fusible by a gentle heat, and yet preserve it hard enough for ordinary uses; with the glassman and looking-glass maker, to render glass malleable; with the clock-maker, to bring pendulums to be useful where there are irregular motions, &c.

DESIGN, in a general sense, the plan, order, representation, or construction of a building, book, painting, &c. See ARCHITECTURE, PAINTING, POETRY, ORATORY, HISTORY.

DESIGN, in the manufactories, expresses the figures wherewith the workman enriches his stuff or silk, and which he copies after some painter or eminent draughtsman, as in diaper, damask, and other flowered silk and tapestry, and the like.

In undertaking of such kinds of figured stuffs, it is necessary, says Monsr. Savary, that, before the first stroke of the shuttle, the whole design be represented on the threads of the warp, we do not mean in colours, but with an infinite number of little packthreads, which, being disposed so as to raise the threads of the warp, let the workmen see, from time to time, what kind of silk is to be put in the eye of the shuttle for woof. This method of preparing the work is called *reading the design*, and *reading the figure*, which is performed in the following manner: A paper is provided, considerably broader than the stuff, and of a length proportionate to what is intended to be represented thereon. This they divide lengthwise, by as many black lines as there are intended threads in the warp; and cross these lines, by others drawn breadthwise, which, with the former, make little equal squares; on the paper thus squared, the draughtsman designs his figures, and heightens them with colours as he sees fit. When the design is finished, a workman reads it, while another lays it on the simblot.

To read the design, is to tell the person who manages the loom, the number of squares or threads comprised in the space he is reading, intimating at the same time, whether it is ground or figure. To put what is read on the simblot, is to fasten little strings to the several packthreads, which are to raise the threads named: and this they continue to do till the whole design is read.

Every piece being composed of several repetitions of the same design, when the whole design is drawn, the drawer, to re-begin the design afresh, has nothing to do but to raise the little strings, with slip-knots, to the top

Desertion
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Design.

Design top of the simblot, which he had let down to the bottom: this he is to repeat as often as is necessary till the whole be manufactured.

The ribbon-weavers have likewise a design, but far more simple than that now described. It is drawn on paper with lines and squares, representing the threads of the warp and woof. But instead of lines, whereof the figures of the former consist, these are constituted of points only, or dots, placed in certain of the little squares formed by the intersection of the lines. These points mark the threads of the warp that are to be raised, and the spaces left blank denote the threads that are to keep their situation: the rest is managed as in the former.

DESIGN is also used, in painting, for the first idea of a large work, drawn roughly, and in little, with an intention to be executed and finished in large.

In this sense, it is the simple contour or outlines of the figures intended to be represented, or the lines that terminate and circumscribe them: such design is sometimes drawn in crayons or ink, without any shadows at all; sometimes it is hatched, that is, the shadows are expressed by sensible outlines, usually drawn across each other with the pen, crayon, or graver. Sometimes, again, the shadows are done with the crayon rubbed so as that there do not appear any lines: at other times, the grains or stroke of the crayon appear, as not being rubbed: sometimes the design is washed, that is, the shadows are done with a pencil in Indian ink, or some other liquor; and sometimes the design is coloured, that is, colours are laid on much like those intended for the grand work.

DESIGN, in music, is justly defined by Rousseau to be the invention and the conduct of the subject, the disposition of every part, and the general order of the whole.

It is not sufficient to form beautiful airs, and a legitimate harmony; all these must be connected by a principal subject, to which all the parts of the work relate, and by which they become one. Thus unity ought to prevail in the air, in the movement, in the character, in the harmony, and in the modulation. All these must indispensably relate to one common idea which unites them. The greatest difficulty is, to reconcile the observation of those precepts with an elegant variety, which, if not introduced, renders the whole piece irksome and monotonous. Without question, the musician, as well as the poet and the painter, may risk every thing in favour of this delightful variety; if, under the pretext of contrasting, they do not endeavour to cheat us with false appearances, and instead of pieces justly and happily planned, present us with a musical minced-meat, composed of little abortive fragments, and of characters so incompatible, that the whole assembled forms a heterogeneous monster.

*Non ut placidis coeant immisia, non ut
Serpentes avibus gementur, tigribus agni.*

Translated thus:

But not that nature should revers'd appear;
Mix mild with fierce, and gentle with severe;
Profane her laws to contradiction's height:
Tygers with lambs, with serpents birds unite.

It is therefore in a distribution formed with intelligence and taste, in a just proportion between all the parts, that the perfection of design consists; and it is

above all, in this point, that the immortal Pergolesi has shown his judgment and his taste, and has left so far behind him all his competitors. His *Stabat Mater*, his *Orfeo*, his *Serva Padrona*, are, in three different species of composition, three master-pieces of design equally perfect.

This idea of the general design of a work is likewise particularly applicable to every piece of which it consists: thus the composer plans an air, a duet, a chorus, &c. For this purpose, after having invented his subject, he distributes it, according to the rules of a legitimate modulation, into all the parts where it ought to be perceived, in such a proportion, that its impression may not be lost on the minds of the audience; yet that it may never be reiterated in their ears, without the graces of novelty. The composer errs in designing who suffers his subject to be forgot; he is still more culpable who pursues it till it becomes trite and tiresome.

DESIGNATION, the act of marking or indicating, and making a thing known. The designation of such an estate is made by the tenants, butments, and boundings. Among the Romans, there were designations of the consuls and other magistrates, some time before their election.

DESIGNATOR, a Roman officer, who assigned and marked each person his place and rank in public ceremonies, shows, processions, &c. The word is formed from the verb *designare*, to design.

The designator was a kind of marshal, or master of the ceremonies, who regulated the seats, march, order, &c. There were designators at funeral solemnities, and at the games, theatres, and shows, who not only assigned every one his place, but also led him to it; as appears from the prologue to the *Pœnulus* of Plautus. Much of the same nature were the *agonothetæ* of the Greeks.

DESIGNING, the art of delineating or drawing the appearance of natural objects, by lines, on a plane. To design, according to the rules of mathematics, makes the object of perspective. See PERSPECTIVE.

DESORTES (Francis), a French painter of the 18th century, was born in Champagne in 1661. He acquired great reputation, not only in France, but in England and Poland: he particularly excelled in still life. He was received into the academy of painting, made pictures for the tapestry of the Gobelins, and died at Paris in 1743.

DESPOT, a term sometimes used for an absolute prince: (see next article). The word, in its first origin, signified the same with the Latin *berus*, and the English *master*: but in time it underwent the same fate on medals, as, among the Latins, Cæsar did with regard to Augustus: *BACIAETC* answering to Augustus, and *ΔΕCΠOTHC*, *despotes*, to Cæsar. See CÆSAR. Thus, Nicephorus having ordered his son Stauracius to be crowned, the son, out of respect, would only take the name *ΔΕCΠOTHC*, leaving to his father that of *BACIAETC*. For it is to be noted, that it was just about the time that the emperors began to cease to use Latin inscriptions. This delicacy, however, did not last long; for the following emperors preferred the quality of *ΔΕCΠOTHC* to that of *BACIAETC*, particularly Constantine, Michael Ducas, Nicephorus Botoniates, Romanus Diogenes, the Comneni, and some others. In imitation

Designa-
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Despot
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imitation of the princes, the princesses likewise assumed the title of ΔΕCΠΟΙΝΑ.

It was the emperor Alexius, surnamed the angel, that created the dignity of despot, and made it the first after that of emperor, above that of Augustus or Sebastocrator and Caesar. See AUGUST.

The despots were usually the emperors sons or sons-in-law, and their colleagues or co-partners in the empire, as well as their presumptive heirs. The despots that were sons of the emperors had more privileges and authority than those that were only sons-in-law. Codin, p. 38. describes the habits and ornaments of the despot. See the notes of father Goar on that author. Under the successors of Constantine the Great, the title *despot of Sparta* was given to the emperor's son or brother, who had the city of Sparta or Lacedemon by way of appanage.

Despot is at present a title of quality given to Wallachia, Servia, and some of the neighbouring countries.

DESPOTICAL, in general, denotes any thing that is uncontrolled and absolute; but is particularly used for an arbitrary government, where the power of the prince is unlimited, and his will a law to his subjects: such as those of Turkey, Persia, and most of the eastern governments; and even those of Europe, if we except the republics, our own, and of late the French government.

DESPOUILLE, in heraldry, the whole case, skin, or flough of a beast, with the head, feet, tail, and all appurtenances, so that being filled and stuffed it looks like the entire creature.

DESPREAUX. See BOILEAU.

DESSAW, a city of Upper Saxony, in Germany, situated on the river Elbe, 60 miles north-west of Dresden, and subject to the prince of Anhalt Dessau. E. Long. 12. 40. N. Lat. 51. 50.

DESSERT, or DESERT, a service of fruits and sweetmeats, usually served up last at table.

DESSICCATIVE, or DESICCATIVE, in pharmacy, an epithet applied to such topical medicines as dry up the humours flowing to a wound or ulcer.

DESTINIES, in mythology. See PARCÆ.

DESTINY, among philosophers and divines. See FATE.

DESTRUCTION, in general, an alteration of any thing from its natural state to one contrary to nature; whereby it is deemed the same with CORRUPTION.

A chemical destruction, or corruption, is nothing but a resolution of the whole naturally mixt body into its parts.

DESUDATION, in medicine, a profuse and inordinate sweat, succeeded by an eruption of pustules, called *sudamina*, or *heat pimples*.

DESULTOR, in antiquity, a vaulter or leaper, who, leading one horse by the bridle, and riding another, jumped from the back of one to the other, as the custom was after they had run several courses or heats. — This practice required great dexterity, being performed before the use of either saddles or stirrups. The custom was practised in the army when necessity required it; but chiefly amongst the Numidians, who always carried with them two horses at least for that purpose, changing them as they tired. The Greeks and Romans borrowed the practice from them; but only used it at races, games, &c. The Sarmatæ were

Nº 100.

great masters of this exercise, and the Hussars have still some remains of it.

DETACHMENT, in military affairs, a certain number of soldiers drawn out from several regiments or companies equally, to be employed as the general thinks proper, whether on an attack, at a siege, or in parties to scour the country.

DETENTION (from *detineo* "I detain"), the possession or holding of lands, or the like, from some other claimant. The word is chiefly used in an ill sense, for an unjust with-holding, &c.

DETENTS, in a clock, are those stops which, by being lifted up or let fall down, lock and unlock the clock in striking.

DETENT-Wheel, or Hoop-Wheel, in a clock, that wheel which has a hoop almost round it, wherein there is a vacancy, at which the clock locks.

DETERGENTS, in pharmacy, such medicines as are not only softening and adhesive, but also, by a peculiar activity, conjoined with suitable configuration of parts, are apt to abrade and carry along with them such particles as they lay hold on in their passage.

DETERIORATION, the impairing or rendering any thing worse; it is just the reverse of melioration.

DETERMINATION, in mechanics, signifies much the same with the tendency or direction of a body in motion. See MECHANICS.

DETERMINATION, among school-divines, is an act of divine power, limiting the agency of second causes, in every instance, to what the Deity predestinated concerning them. See PREDESTINATION.

DETERSIVES, the same with DETERGENTS.

DETINUE, in law, a writ or action that lies against one who has got goods or other things delivered to him to keep, and afterwards refuses to deliver them. — In this action, the thing detained is generally to be recovered, and not damages; but if one cannot recover the thing itself, he shall recover damages for the thing, and also for the detainer. Detinue lies for any thing certain and valuable, wherein one may have a property or right; as for a horse, cow, sheep, hens, dogs, jewels, plate, cloth, bags of money, sacks of corn, &c. It must be laid so certain, that the thing detained may be known and recovered: and therefore, for money out of a bag, or corn out of a sack, &c. it lies not; for the money or corn cannot in this case be known from other money or corn; so that the party must have an action on the case, &c. Yet detinue may be brought for a piece of gold of the price of 22s. though not for 22 s. in money.

DETONATION, in chemistry, signifies an explosion with noise made by the sudden inflammation of some combustible body: such are the explosions of *gun-powder*, *fulminating gold*, and *fulminating powder*. As nitre is the cause of most explosions, the word *detonation* has been appropriated to the inflammation of the acid of this salt with bodies containing phlogiston; and it is frequently given to those inflammations of nitrous acid which are not accompanied with explosion. Thus nitre is said to detonate with sulphur, with coals, with metals; although in the ordinary method of making these operations, that is, in open crucibles, and with small quantities of detonating substances, the nitre does not truly explode. See NITRE.

DETRANCHE, in heraldry, a line bend-wise,

Detachment
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Detranche.

pro-

Dettingen
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Deucalion.

proceeding always from the dexter-side, but not from the very angle diagonally athwart the shield.

DETTINGEN, a village of Germany, in the circle of the Upper Rhine, and in the territory of Hanau. Here the Austrians and the British, in June 1743, were attacked by the French, who met with a repulse; but as the allies were inferior in number, they could not make the advantage of it they might otherwise have done. E. Long. 8. 45. N. Lat. 50. 8.

DEVA, or DEUNA (anc. geog.), a town of the Cornavii in Britain. Now *Chester*, on the Dee. W. Long. 3. N. Lat. 53. 15.

DEUCALEDONIUS OCEANUS, or (which comes nearer the original pronunciation) *Duacaledonius*, so called from *Duab Gael*, the northern Highlanders: the sea on the north-west of Scotland.

DEUCALION, king of Thessaly. The flood said to have happened in his time (1500 B. C.), is supposed to have been only an inundation of that country, occasioned by heavy rains, and an earthquake that stopped the course of the river Peneus where it usually discharged itself into the sea. On these circumstances the fable of Deucalion's flood is founded. —According to the fable, he was the son of Prometheus. He governed his people with equity; but the rest of mankind being extremely wicked, were destroyed by a flood, while Deucalion and Pyrrha his queen saved themselves by ascending mount Parnassus. When the waters were decreased, they went and consulted the oracle of Themis, on the means by which the earth was to be re-peopled; when they were ordered to veil their heads and faces, to unloose their girdles, and throw behind their backs the bones of their great mother. At this advice Pyrrha was seized with horror: but Deucalion explained the mystery, by observing, that their great mother must mean the earth, and her bones the stones; when taking them up, those Deucalion threw over his head became men, and those thrown by Pyrrha, women.

Some have supposed that Deucalion, whom the Greeks have represented under a variety of characters, and concerning whom their poets have given many fabulous accounts, was the same with the patriarch Noah; and that Deucalion's flood in Thessaly, as well as that of Ogyges in Attica, and of Prometheus in Egypt, were the same with that of Noah recorded in scripture. Diodorus Siculus expressly says, that in the deluge which happened in the time of Deucalion almost all flesh died. Apollodorus having mentioned Deucalion *ἡ-λυσσάντι*, “consigned to an ark,” takes notice, upon his quitting it, of his offering up an immediate sacrifice, *Διὶ φερίω*, “to the God who delivered him.” As he was the father of mankind, the ancients have given him great dignity and universal monarchy; though sometimes he is reduced to a petty king of Thessaly. Appollonius Rhodius makes him a native of Greece, and the son of Prometheus. We may learn, however, from their confused history, that the person represented was the first of men, through whom religious rites were renewed, cities built, and civil polity established in the world: none of which circumstances are applicable to any king of Greece. Philo assures us, that the Grecians call the person Deucalion, but the Chaldeans style him Noe, in whose time there happened the great eruption of waters.

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But as Lucian has given us the most particular history of the deluge, and that which comes nearest to the account given by Moses; and as he was a native of Samosata, a city of Commagene upon the Euphrates, a part of the world where memorials of the deluge were particularly preserved, and where an obvious reference to that history may be observed in the rites and worship of the country, we shall give the following extract of what he says on the subject. Having described Noah under the name of Deucalion, he says, that the present race of mankind are different from those who first existed; for those of the antediluvian world were all destroyed. The present world is peopled from the sons of Deucalion; having increased to so great a number from one person. In respect to the former brood, they were men of violence, and lawless in their dealings. They regarded not oaths, nor observed the rites of hospitality, nor showed mercy to those who sued for it. On this account they were doomed to destruction; and for this purpose there was a mighty eruption of waters from the earth, attended with heavy showers from above; so that the rivers swelled, and the sea overflowed, till the whole earth was covered with a flood, and all flesh drowned. Deucalion alone was preserved to repeople the world. This mercy was shown to him on account of his justice and piety. His preservation was effected in this manner; he put all his family, both his sons and their wives, into a vast ark which he had provided, and he went into it himself. At the same time animals of every species, boats, horses, lions, serpents, whatever lived upon the face of the earth, followed him by pairs; all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout by the immediate influence of the Deity. Thus were they waisted with him as long as the flood endured. After this he proceeds to mention, that upon the disappearing of the waters Deucalion went forth from the ark and raised an altar to God.

Dr Bryant produces a variety of monuments that bear an obvious reference to the deluge in the Gentile history, besides this account of Deucalion and his flood: *Analysis of Ancient Mythology*, vol. ii. p. 193. —250.

DEVONSHRING. See DEVONSHERRING.

DEVENTER, a large, strong, trading, and populous town of the United Provinces in Overijssel, with an university. It is surrounded with strong walls, flanked with several towers, and with ditches full of water. It is seated on the river IJssel, 55 miles east of Amsterdam, and 42 west of Benthem. E. Long. 5. 8. N. Lat. 52. 18.

DEVEREUX (Robert), earl of Essex, the son of Walter Devereux, viscount Hereford, was born at Netherwood in Herefordshire, in the year 1567. He succeeded to the title of earl of Essex at ten years of age; and about two years after, was sent, by his guardian, lord Burleigh, to Trinity-college in Cambridge. He took the degree of master of arts in 1582, and soon after retired to his seat at Lampfie in South-Wales. He did not however continue long in this retreat; for we find him, in his seventeenth year, at the court of queen Elizabeth, who immediately honoured him with singular marks of her favour. Authors seem very unnecessarily perplexed to account for this young earl's

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gracious

Deucalion
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Devereux.

De Dea Syria, vol. ii. p. 882.

Devereux.

gracious reception at the court of Elizabeth. The reasons are obvious: he was her relation, the son of one of her most faithful servants, the son-in-law of her favourite Leicester, and a very handsome and accomplished youth. Towards the end of (the following year) 1585, he attended the earl of Leicester to Holland; and gave signal proofs of his personal courage during the campaign of 1586, particularly at the battle of Zutphen, where the gallant Sidney was mortally wounded. On this occasion the earl of Leicester conferred on him the honour of knight banneret.

In the year 1587, Leicester being appointed lord steward of the household, Essex succeeded him in the honourable post of master of the horse; and the year following, when the queen assembled an army at Tilbury to oppose the Spanish invasion, Essex was made general of the horse. From this time he was considered as the happy favourite of the queen. And if there was any mark yet wanting to fix the people's opinion in that respect, it was shown by the queen's conferring on him the honour of the garter.

We need not wonder, that so quick an elevation, and to so great a height, should affect so young a man as the earl of Essex; who showed from hence forwards a very high spirit, and often behaved petulantly enough to the queen herself, who yet did not love to be controlled by her subjects. His eagerness about this time to dispute her favour with Sir Charles Blunt, afterwards lord Montjoy and earl of Devonshire, cost him some blood; for Sir Charles, thinking himself affronted by the earl, challenged him, and after a short dispute, wounded him in the knee. The queen, so far from being displeased with it, is said to have sworn a good round oath, that it was fit somebody should take him down, otherwise there would be no ruling him. However, she reconciled the rivals; who, to their honour, continued good friends as long as they lived.

The gallant Essex, however, was not so entirely captivated with his situation, as to become insensible to the allurements of military glory. In 1589, Sir John Norris and Sir Francis Drake having sailed on an expedition against Spain, our young favourite, without the permission or knowledge of his royal mistress, followed the fleet; which he joined as they were sailing towards Lisbon, and acted with great resolution in the repulse of the Spanish garrison of that city. The queen wrote him a very severe letter on the occasion; but she was, after his return, soon appeased. Yet it was not long before he again incurred her displeasure, by marrying the widow of Sir Philip Sidney. In 1591, he was sent to France with the command of 4000 men to the assistance of Henry IV. In 1596, he was joined with the lord high admiral Howard in the command of the famous expedition against Cadiz, the success of which is universally known. In 1597 he was appointed master of the ordnance; and the same year commanded another expedition against Spain, called the *Island voyage*, the particulars of which are also well known.

Soon after his return, he was created earl marshal of England; and on the death of the great lord Burleigh, in 1598, elected chancellor of the university of Cambridge. This is reckoned one of the last instances of this great man's felicity, who was now advanced too high to sit at ease; and those who longed for his ho-

nours and employments, very closely applied themselves to bring about his fall. The first great shock he received in regard to the queen's favour, arose from a warm dispute between her majesty and himself, about the choice of some fit and able person, to superintend the affairs of Ireland. The affair is related by Camden; who tells us, that nobody was present but the lord admiral, Sir Robert Cecil secretary, and Windbank clerk of the seal. The queen looked upon Sir William Knolls, uncle to Essex, as the most proper person for that charge: Essex contended, that Sir George Carew was a much fitter man for it. When the queen could not be persuaded to approve his choice, he so far forgot himself and his duty, as to turn his back upon her in a contemptuous manner; which insolence her majesty not being able to bear, gave him a box on the ear, and bid him go and be hanged. Essex, like a blockhead, put his hand to his sword, and swore revenge. Where was his gallantry on this occasion? Could a stroke from an angry woman tinge the honour of a gallant soldier? This violent storm, however, soon subsided: and they were again reconciled, at least apparently.

The total reduction of Ireland being brought upon the tapis soon after, the earl was pitched upon as the only man from whom it could be expected. This was an artful contrivance of his enemies, who hoped by this means to ruin him; nor were their expectations disappointed. He declined this fatal preferment as long as he could: but, perceiving that he should have no quiet at home, he accepted; and his commission for lord lieutenant passed the great seal on the 12th of March 1598. His enemies now began to insinuate that he had sought this command, for the sake of greater things which he then was meditating; but there is a letter of his to the queen, preserved in the Harleian collections, which shows, that he was so far from entering upon it with alacrity, that he looked upon it rather as a banishment, and a place assigned him for a retreat from his sovereign's displeasure, than a potent government bestowed upon him by her favour.

To the Queen. From a mind delighting in sorrow;
 "from spirits wasted with passion; from a heart torn in
 "pieces with care, grief, and travail; from a man that
 "hateth himself, and all things else that keep him alive;
 "what service can your majesty expect, since any ser-
 "vice past deserves no more than banishment and pro-
 "scription to the cursedest of all islands? It is your
 "rebel's pride and oppression must give me leave to ran-
 "som myself out of this hateful prison, out of my
 "loathed body; which if it happen so, your majesty
 "shall have no cause to mislike the fashion of my death,
 "since the course of my life could never please you.

"Happy he could finish forth his fate,
 "In some un haunted desert most obscure
 "From all society, from love and hate
 "Of wordly folk; then should he sleep secure.
 "Then wake again, and yield God ever praise,
 "Content with hips and hawes, and brambleberry;
 "In contemplation passing out his days,
 "And change of holy thoughts to make him merry.
 "Who when he dies, his tomb may be a bush
 "Where harmless robin dwells with gentle thrush.

"Your Majesty's exiled servant,

"ROBERT ESSEX."
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Devereux.

Devereux.

The earl met with nothing in Ireland but ill success and crosses: in the midst of which, an army was suddenly raised in England, under the command of the earl of Nottingham; nobody well knowing why, but in reality from the suggestions of the earl's enemies to the queen, that he rather meditated an invasion on his native country, than the reduction of the Irish rebels. This and other considerations made him resolve to quit his post, and come over to England; which he accordingly did without leave. He burst into her majesty's bed-chamber as she was rising, and she received him with a mixture of tenderness and severity: but she, soon after, thought fit to deprive him of all his employments, except that of master of the horse. He was committed to the custody of the lord-keeper, with whom he continued six months. No sooner had he regained his liberty, than he was guilty of many extravagancies; to which he was instigated by knaves and fools, but perhaps more powerfully by his own passions. He first determined to obtain an audience of the queen by force. He refused to attend the council when summoned. When the queen sent the lord-keeper, the lord chief-justice and two others, to know his grievances, he confined them; and then marched with his friends into the city, in expectation that the people would rise in his favour; but in that he was disappointed. He was at last besieged, and taken in his house in Essex-street; committed to the tower; tried by his peers, condemned, and executed. Thus did this brave man, this favourite of his queen, this idol of the people, fall a sacrifice to his want of that dissimulation, that cunning, that court-policy, by which his enemies were enabled to effect his ruin. He was a polite scholar, and a generous friend to literature.

To those who have not taken the trouble to consult and compare the several authors who have related the story of this unfortunate earl, it must appear wonderful, if, as hath been suggested, he was really beloved by queen Elizabeth, that she could consent to his execution. Now that she had conceived a tender passion for him, is proved beyond a doubt by Mr Walpole in his very entertaining and instructive *Catalogue of Noble Authors*:—"I am aware (says that author) that it is become a mode to treat the queen's passion for him as a romance. Voltaire laughs at it; and observes, that when her struggle about him must have been the greatest (the time of his death), she was sixty-eight.—Had he been sixty-eight, it is probable she would not have been in love with him."—"Whenever Essex acted a fit of sickness, not a day passed without the queen's sending often to see him; and once went so far as to sit long by him, and order his *broths and things*. It is recorded by a diligent observer of that court, that in one of his sick moods, he took the liberty of going up to the queen in his night-gown. In the height of these fretful fooleries, there was a mask at Black Fryars on the marriage of lord Herbert and Mrs Ruffel. Eight lady-maskers chose eight more to dance the measures. Mrs Fitton, who led them, went to the queen, and wooed her to dance. Her majesty asked what she was? *Affection*, she said. *Affection!* said the queen; *Affection is false*. Were not these the murmurs of a heart ill at ease? Yet her majesty rose, and danced. She was then sixty-eight. Sure it was as natural for her to be in love."

Devereux.

Mr Walpole farther observes, that her court and contemporaries had an uniform opinion of her passion for Essex, and quotes several instances from a letter written by Sir Francis Bacon to the earl; in which, among other things, he advises him to consult her taste in his very apparel and gestures, and to give way to any other inclination she may have. Sir Francis advised the queen herself, knowing her inclination, to keep the earl about her for *society*. What Henry IV. of France thought of the queen's affection for Essex, is evident from what he said to her ambassador—"Que sa majesté ne laisseroit jamais son cousin d'Essex éloigner de son cotillon."—After his confinement, on hearing he was ill, she sent him word, with tears in her eyes, that if she might with her honour, she would visit him.

"If (says Mr Walpole) these instances are problematic, are the following so? In one of the curious letters of Rowland White, he says, *the queen hath of late used the fair Mrs Bridges with words and blows of anger*. In a subsequent letter, he says, *the earl is again fallen in love with his fairest B. It cannot choose but come to the queen's ear, and then he is undone*."—Essex himself says, that her fond parting with him when he set out for Ireland, pierced his very soul.

Probably the reader has now very little doubt as to queen Elizabeth's affection for the unfortunate Essex; but, in proportion to our belief of the existence of the affection, her motives for consenting to his execution become more inexplicable. Queen Elizabeth had a very high opinion of her beauty and personal attractions, and probably expected more entire adoration than the earl's passion for variety would suffer him to pay. Towards the latter end of her life, she was certainly an object of disgust. He had too much honest simplicity in his nature, to feign a passion which he did not feel. She foolishly gave credit to the stories of his ambitious projects incompatible with her safety; and was informed that he had once inadvertently said, that *she grew old and cankered, and that her mind was become as crooked as her carcase*. If this be true, where is the woman that would not sacrifice such a lover to her resentment?

It is said, however, that, concerning his execution, her majesty was irresolute to the last, and sent orders to countermand it; but, considering his obstinacy in refusing to ask her pardon, afterwards directed that he should die. It is reported, that the queen, in the height of her passion for the earl of Essex, had given him a ring, ordering him to keep it, and that whatever crime he should commit, she would pardon him when he should return that pledge. The earl, upon his condemnation, applied to admiral Howard's lady, his relation, desiring her, by a person whom she could trust, to return it into the queen's own hands; but her husband, who was one of the earl's greatest enemies, and to whom she had imprudently told the circumstance, would not suffer her to acquit herself of the commission; so that the queen consented to the earl's death, being full of indignation against so proud and haughty a spirit, who chose rather to die than implore her mercy. Some time after, the admiral's lady fell sick, and being near her death, she sent word to the queen that she had something of great consequence to communicate before she died. The queen came to her bedside, and having ordered all her attendants to withdraw, the lady re-

Device
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Devise.

turned, but too late, the ring, desiring to be excused that she did not return it sooner : on which, it is said, the queen immediately retired, overwhelmed with grief.

The earl of Essex died in the thirty-fourth year of his age ; leaving by his lady one son and two daughters.

DEVICE, among painters. See DEVISE.

DEVIL (*Diabolus*), an evil angel, one of those celestial spirits cast down from heaven for pretending to equal himself with God. The Ethiopians paint the devil white, to be even with the Europeans who paint him black.

There is no mention of the word *devil* in the Old Testament, but only of the word *Satan* and *Belial* : nor do we meet with it in any heathen authors, in the sense it is taken among Christians, that is, as a creature revolted from God. Their theology went no farther than to evil genii or dæmons.

Some of the American idolaters have a notion of two collateral independent beings, one of whom is good and the other evil ; which last they imagine has the direction and superintendence of this earth, for which reason they chiefly worship him ; whence those that give us an account of the religion of these savages give out, with some impropriety, that they worship the devil. The Chaldeans, in like manner, believed both a good principle and an evil one ; which last they imagined was an enemy to mankind.

Isaiah, speaking, according to some commentators, of the fall of the devil, calls him *Lucifer*, from his former elevation and state of glory : but others explain this passage of Isaiah in reference to the king of Babylon, who had been precipitated from his throne and glory. The Arabians call Lucifer, *Eblis* ; which some think is only a diminutive or corruption of the word *Diabolus*.

DEVIL on the Neck, a tormenting engine made of iron, straitening and wincing the neck of a man, with his legs together, in a horrible manner ; so that the more he stirreth in it, the straiter it presseth him ; formerly in use among the persecuting papists.

DEVINCTION (*Devinatio*), in antiquity, was used to signify a love-charm or incantation to gain the affection of a person beloved.

It was done by tying knots ; and is thus described by Virgil in his eighth Eclogue :

Necte tribus nodis ternos, Amarylli, colores :

Necte, Amarylli, modo ; et Veneris, dic, vincula necto.

DEVISE, or DEVICE, in heraldry, painting, and sculpture, any emblem used to represent a certain family, person, action, or quality ; with a suitable motto, applied in a figurative sense. See MOTTO.

The essence of a device consists in a metaphorical similitude between the things representing and represented : thus, a young nobleman, of great courage and ambition, is said to have born for his devise, in a late carousal at the court of France, a rocket mounted in the air, with this motto in Italian, "*poco duri purche m'inalzi* ;" expressing, that he preferred a short life, provided he might thereby attain to glory and eminence.

The Italians have reduced the making of devises into an art, some of the principal laws of which are these :

1. That there be nothing extravagant or monstrous in the figures.
2. That figures be never joined which have no relation or affinity with one another ; excepting some whimsical unions established in ancient fables, which custom has authorised.
3. That the human body be never used.
4. The fewer figures the better.
5. The motto should be every way suitable.

DEVISE, in law, the act whereby a person bequeathes his lands or tenements to another by his last will or testament.

DEUNX, in Roman antiquity, 11 ounces, or $\frac{1}{12}$ of the LIBRA.

DEVOLVED, something acquired by right of devolution. Such a right is devolved to the crown : such an estate devolved on M — by the death of N —.

The word is also used for a right, acquired by a superior, of conferring a benefice, when the inferior and ordinary collator, has neglected to confer, or has conferred it on an unqualified person.

If a patron neglects to present to a benefice in six months, the presentation lapses or devolves upon the bishop, from thence to the primate, and from thence to the king.

DEVOLUTION, in law, a right acquired by succession from one to another.

DEVONSHEERING, a term used by the farmers to express the burning of land by way of manure : the method is to cut off the turf about four inches thick, and burn it in heaps, and then spread the ashes upon the land. The name is probably derived from its having been earliest practised in Devonshire.

DEVONSHIRE, a county of England, bounded on the south by the English channel, on the north by the Bristol channel, on the east by Somersetshire, and on the west by Cornwall. It is about 69 miles long and 66 broad. The soil is various ; in the western parts of the country it is coarse and moorish, bad for sheep, but proper for black cattle. In the northern parts, the dry soil and downs are well adapted to sheep, with numerous flocks of which they are well covered. Tolerable crops of corn are also produced there when the land is well manured. The soil of the rest of the country is rich and fertile both in corn and pasture, yielding also in some places plenty of marle for manuring it. In other places they pare off and burn the surface, making use of the ashes as a manure. Dr Campbell styles it a rich and pleasant country ; as in different parts it abounds with all sorts of grain, produces abundance of fruit, has mines of lead, iron, and silver, in which it formerly exceeded Cornwall, though now it is greatly inferior. On the coast also they have herring and pilchard fisheries. Devonshire sends two members to parliament, and gives title of Duke to the noble family of Cavendish.

DEVOTION, DEVOTIO, a sincere ardent worship of the Deity.

Devotion, as defined by Jurieu, is a softening and yielding of the heart, with an internal consolation, which the souls of believers feel in the practice or exercise of piety. By devotion is also understood certain religious practices, which a person makes it a rule to discharge regularly ; and with reason, if the exactitude be founded on solid piety, otherwise it is vanity or superciliousness.

Devise
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Devotion.

Devotion.

perfection. That devotion is vain and trifling, which would accommodate itself both to God and to the world. *Trevoux.*

The character of devotion has frequently suffered from the forbidding air which has been thrown over it, by the narrowness of bigotry on one hand, or the gloom of superstition on the other. When freer and more cheerful minds have not had occasion to see it accompanied with those feelings of delight and benevolence which naturally attend it, they are apt to be prejudiced against piety at large, by mistaking this ungracious appearance for its genuine form. Nor has the rant of vulgar enthusiasts contributed a little to beget or strengthen the same aversion, in persons of a cool and speculative temper; who have happened to meet with such images and phrases among religionists of a certain strain, as ill suit the rational, pure, and spiritual nature of true devotion. It may likewise be remarked on the other side, that people of taste and sensibility have not seldom been disgusted with the insipid style too often employed on such subjects, by those who possess neither, or who purposely avoid every thing of that kind, from an aim at simplicity misunderstood, or perhaps from a fear of being thought too warm, in an age of fashionable indifference and false refinement.

Wherever the vital and unadulterated spirit of Christian devotion prevails, its immediate object will be to please Him whom we were made to please, by adoring his perfections; by admiring his works and ways; by entertaining with reverence and complacence the various intimations of his pleasure, especially those contained in holy writ; by acknowledging our absolute dependance, and infinite obligations; by confessing and lamenting the disorders of our nature and the transgressions of our lives; by imploring his grace and mercy through Jesus Christ; by interceding for our brethren of mankind; by praying for the propagation and embellishment of truth, righteousness and peace on earth; in fine, by longing for a more entire conformity to the will of God, and breathing after the everlasting enjoyment of his friendship. The effects of such a spirit habitually cherished, and feelingly expressed before him, with conceptions more or less enlarged and elevated, in language more or less emphatical and accurate, sententious or diffuse, must surely be important and happy. Among these effects may be reckoned, a profound humility in the sight of God, a high veneration for his presence and attributes, an ardent zeal for his worship and honour, an affectionate faith in the Saviour of the world, a constant imitation of his divine example, a diffusive charity for men of all denominations, a generous and unwearied self-denial for the sake of virtue and society, a total resignation to Providence, an increasing esteem for the gospel, with clearer and firmer hopes of that immortal life which it has brought to light.

DEVOTION, among the Romans, was a kind of sacrifice or ceremony, whereby they consecrated themselves to the service of some person. The ancients had a notion, that the life of one might be ransomed by the death of another; whence those devotions became frequent for the lives of the emperors. Devotion to any particular person was unknown among the Romans till the time of Augustus. The very day after

the title of Augustus had been conferred upon Octavius, Pacuvius, a tribune of the people, publicly declared, that he would devote himself to Augustus, and obey him at the expence of his life (as was the practice among barbarous nations), if he was commanded. His example was immediately followed by all the rest; till at length it became an established custom never to go to salute the emperor, without declaring that they were devoted to him. — Before this, the practice of the Romans was that of devoting themselves to their country. See *DECIUS*.

DEUTEROCANONICAL, in the school theology, an appellation given to certain books of holy scripture, which were added to the canon after the rest; either by reason they were not wrote till after the compilation of the canon, or by reason of some dispute as to their canonicity. The word is Greek, being compounded of *deuteros* second, and *kanonikos* canonical.

The Jews, it is certain, acknowledged several books in their canon, which were put there later than the rest. They say, that under Esdras, a great assembly of their doctors, which they call by way of eminence the *great synagogue*, made the collection of the sacred books which we now have in the Hebrew Old Testament. And they agree that they put books therein which had not been so before the Babylonish captivity; such are those of Daniel, Ezekiel, Haggai, &c. and those of Esdras and Nehemiah.

And the Romish church has since added others to the canon, that were not, and could not be, in the canon of the Jews, by reason some of them were not composed till after. Such is the book of Ecclesiasticus, with several of the apocryphal books, as the Maccabees, Wisdom, &c. Others were added still later, by reason their canonicity had not been yet examined; and till such examen and judgment they might be set aside at pleasure. — But since that church has pronounced as to the canonicity of these books, there is no more room now for her members to doubt of them, than there was for the Jews to doubt of those of the canon of Esdras. And the deuterocanonical books are with them as canonical as the proto-canonical; the only difference between them consisting in this, that the canonicity of the one was not generally known, examined, and settled, so soon as that of the others.

The deuterocanonical books in the modern canon, are the book of Esther, either the whole, or at least the seven last chapters thereof; the epistle to the Hebrews; that of James; and that of Jude; the second of St Peter; the second and third of St John; and the Revelation. The deuterocanonical parts of books, are in Daniel, the hymn of the three children; the prayer of Azariah; the histories of Susannah, of Bel and the Dragon; the last chapter of St Mark; the bloody sweat, and the appearance of the angel, related in St Luke, chap. xxii.; and the history of the adulterous woman in St John, chap. viii.

DEUTERONOMY, one of the sacred books of the old Testament; being the last of these written by Moses; (See *PENTATEUCH*). The word is Greek, compounded of *deuteros* second, and *nomos* law.

Deuteronomy was written in the 40th year after the delivery from Egypt, in the country of the Moabites, beyond Jordan; Moses being then in the 120th year of

Deuterocanonical,
Deuteronomy.

Deutero-
potmi
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Dew.

of his age. It contains, in Hebrew, 11 paraches, though only 10 in the edition of the rabbins at Venice; XX chapters, and 955 verses. In the Greek, Latin, and other versions, it contains XXXIV chapters. The last is not of Moses. Some say it was added by Joshua immediately after Moses's death; which is the most probable opinion. Others will have it added by Esdras.

DEUTEROPOTMI, in Grecian antiquity, a designation given to such of the Athenians as had been thought dead, and, after the celebration of the funeral rites, unexpectedly recovered. It was unlawful for the deuteropotmi to enter into the temple of the Eumenides, or to be admitted to the holy rites, till after they were purified, by being let through the lap of a woman's gown, that they might seem to be new born.

DEUTEROSIS, the Greek name by which the Jews called their Mischnah, or second law. See MISCHNAH.

DEW, a dense, moist vapour, found on the earth in spring and summer mornings, in form of a misting rain, being collected there chiefly while the sun is below the horizon.

It hath been disputed whether the dew is formed from the vapours *ascending* from the earth during the night-time, or from the *descent* of such as have been already raised through the day. The most remarkable experiments adduced in favour of the first hypothesis are those of Mr Dufay of the Royal Academy of Sciences at Paris. He supposed, that if the dew *ascended*, it must wet a body placed low down sooner than one placed in a higher situation: and, if a number of bodies were placed in this manner, the lowermost would be wetted first; and the rest in like manner, gradually up to the top.

To determine this, he placed two ladders against one another, meeting at their tops, spreading wide asunder at the bottom, and so tall as to reach 32 feet high. To the several steps of these he fastened large squares of glass like the panes of windows, placing them in such a manner that they should not overshade one another. On the trial it appeared exactly as Mr Dufay had apprehended. The lower surface of the lowest piece of glass was first wetted, then the upper, then the lower surface of the pane next above it; and so on, till all the pieces were wetted to the top. Hence it appeared plain to him, that the dew consisted of the vapours ascending from the earth during the night-time; which, being condensed by the coldness of the atmosphere, are prevented from being dissipated as in the day-time by the sun's heat. He afterwards tried a similar experiment with pieces of cloth instead of panes of glass, and the result was quite conformable to his expectations. He weighed all the pieces of cloth next morning, in order to know what quantity of water each had imbibed, and found those that had been placed lowermost considerably heavier than such as had been placed at the top; tho' he owns that this experiment did not succeed so perfectly as the former.

M. Muschenbroek, who embraced the contrary opinion, thought he had invalidated all Mr Dufay's proofs, by repeating his experiments, with the same success on a plane covered with sheet lead. But to this Mr Dufay replied, that there was no occasion for suppo-

sing the vapour to rise through the lead, nor from that very spot; but that as it arose from the adjoining open ground, the continual fluctuation of the air could not but spread it abroad, and carry it thither in its ascent.

But though this experiment of M. Muschenbroek's is not sufficient to overthrow those of Mr Dufay, it must still remain dubious whether the dew rises or falls. One thing which seems to favour the hypothesis of its descent is, that in cloudy weather there is little or no dew to be observed. From this M. de Luc brings an argument in favour of the hypothesis just now mentioned. He accounts for it in the following manner. When there were no clouds in the air, the heat of the inferior air and that which rises from the earth dissipates itself into the superior regions; and then the vapours which are dispersed throughout the air condense, and fall down in dew: But, when the clouds continue, they separate the inferior from the superior part of the atmosphere, and thus prevent the dissipation of the heat, by which means the vapours remain suspended. When the sky grows cloudy, some hours after sun-set, although the heat has been sensibly diminished, it is again increased; because, continuing to rise out of the earth, it is accumulated in the inferior air. But neither can this be reckoned a positive proof of the descent of the dew; since we may as well suppose the heat of the atmosphere to be great enough to dissipate it in its ascent, as to keep it suspended after its ascent through the day.

On the other hand, its being found in greater quantities on bodies placed low down than on such as are high up, is no proof of the ascent of the dew; because the same thing is observed of rain. A body placed low down receives more rain than one placed in an elevated situation; and yet the rain certainly descends from the atmosphere. The reason why the dew appears first on the lower parts of bodies may be, that, in the evening, the lower part of the atmosphere is first cooled, and consequently most disposed to part with its vapours. It is also certain, that part of the water contained in the air may be condensed at any time on the sides of a glass, by means of cold, so as to run down its sides in small drops like dew. It seems, therefore, that this subject is not sufficiently determined by such experiments as have yet been made; nor indeed does it appear easy to make such experiments as shall be perfectly decisive on the matter.

Several substances, exposed to the same dew, receive and charge themselves with it in a very different manner; some more, others less, and some even not at all. The drops seem to make a sort of choice of what bodies they shall affix themselves to: glass and crystals are those to which they adhere in the most ready manner, and in the largest quantity; but metals of all kinds never receive them at all, nor do the drops ever adhere to them. The reason of this is probably because metals promote evaporation more than glass does. Thus, if a piece of metal and a piece of glass are both made equally moist, the former will be found to dry in much less time than the latter. Hence it would seem, that there is between metals and water some kind of repulsion: and this may be sufficient to keep off the very small quantity that falls in dew; for whatever tends to make water evaporate after it is actually in contact

with

Dew.

Phil. Transf.
vol. lxiii.
part. 2.

Dew.

with any substance, also tends to keep the water from ever coming into contact with it. On this subject several curious particulars are mentioned by Dr Percival relative to the attraction and repulsion between dew and glass or metalline vessels. The experiments were made by M. du Fay, who, in order to determine with certainty whether the difference between vitrified substances and metals was the same in all cases, set a china saucer in the middle of a silver plate, and on one side, adjoining to it, was placed a china plate, with a silver dish very much resembling the saucer in the middle. In this experiment the china saucer was covered with dew, but the plate, though extending four inches round it, was not moistened in the least. The china plate also had become quite moist, while the silver vessel in the middle had not received the smallest drop. M. du Fay next endeavoured to ascertain whether a china saucer set upon a plate of metal, as already described, did not receive more dew than it would have done if exposed alone. To accomplish this design, he took two watch crystals of equal dimensions, and placed the one upon a plate of silver, the other upon a plate of china, each with its concavity uppermost. That which was upon the silver plate he surrounded with a ferrel of the same metal, well polished, that no watery particles might attach themselves to the convex surface of the glass. In this situation he exposed the crystals for several days successively, and always found five or six times more dew in that which was on the china plate than on the other placed on the silver. The repulsion between the dew and silver is further confirmed by the following experiment of M. du Fay, with regard to the crystal on the silver plate. He informs us, that the small quantity of dew on the inside near the centre, was in minute drops; and that round the border there was a space of five or six lines perfectly dry; towards which the drops regularly decreased in magnitude, as if the silver ferrel had driven away the dew from that part of the glass which was contiguous to it. These experiments were repeated thirty times with invariable success. M. du Fay's experiments have received a remarkable confirmation from some lately made by Dr Watson, now bishop of Llandaff, with a view to determine the quantity of vapour that ascends from a given surface of earth. "By means of a little beeswax (says he), I fastened a half-crown very near, but not quite contiguous, to the side of the glass; and, setting the glass with its mouth downward on the grass, it presently became covered with vapour, except that part of it which was next the half-crown. Not only the half-crown itself was free from vapour, but it had hindered any from settling on the glass which was near it; for there was a little ring of glass surrounding the half-crown, to the distance of a quarter of an inch, which was quite dry, as well as that part of the glass which was immediately under the half crown; it seemed as if the silver had repelled the water to that distance. A large red wafer had the same effect as the half-crown; it was neither wetted itself, nor was the ring of glass contiguous to it wetted. A circle of white paper produced the same effect, so did several other substances, which it would be too tedious to enumerate."

SUBSTANCES of a very different kind from the usual dew are said to have sometimes fallen from the atmosphere. In the Phil. Trans. we are told, that in

the year 1695 there fell in Ireland, in the provinces of Leinster and Munster, for a considerable part of the winter and spring, a fatty substance resembling butter, instead of the common dew. It was of a clammy texture, and dark yellow colour; and was, from its great resemblance, generally called *dew butter* by the country people. It always fell in the night, and chiefly in the moorish low grounds; and was found hanging on the tops of the grass, and on the thatch of the houses of the poor people. It was seldom observed to fall twice in the same place; and usually, wherever it fell, it lay a fortnight upon the ground before it changed colour; but after that it gradually dried up, and became black. The cattle fed in the fields where it lay as well as in others, and received no harm by it. It fell in pieces of the bigness of one's finger-end; but they were dispersed scatteringly about, and it had an offensive smell like a church-yard. There were in the same places very stinking fogs during the winter, and some people supposed this no other than a sediment from the fog. It would not keep very long, but never bred worms.

May-Dew whitens linen and wax; the dew of autumn is converted into a white frost. Out of dew putrified by the sun, arise divers insects, which change apace from one species into another: what remains is converted into a fine white salt, with angles like those of salt-petre, after a number of evaporations, calcinations, and fixations.

There is a spirit drawn from May-dew, which has wonderful virtues attributed to it. The method of collecting and preparing it, is prescribed by Hanneman, physician at Kiel. It is to be gathered in clean linen cloths; exposed to the sun in close vials; then distilled, and the spirit thrown upon the caput mortuum; this is to be repeated till the earth unite with the spirit, and become liquid; which happens about the seventh or eighth cohobation or distillation. By such means you gain a very red, odoriferous spirit. Stouterfoht, a physician of Lubec, thinks may-dew may be gathered in glass-plates, especially in still weather, and before sun-rise. And Etmuller is of the same sentiment. It might likewise be collected with a glass funnel, exposed to the air, having a crooked neck to bring the dew into a vial in a chamber. See Phil. Trans. n^o 3. Hoffman, and others. It is apparently from the preparation of this dew, that the brothers of the Rosy-Cross took their denomination. See ROSICRUCIANS.

Dew-Born, in country affairs, a distemper in cattle, being a swelling in the body, as much as the skin can hold, so that some beasts are in danger of bursting. This distemper proceeds from the greediness of a beast to feed, when put into a rank pasture, but commonly when the grass is full of water. In this case the beast should be stirred up and down, and made to purge well; but the proper cure is bleeding in the tail; then take a grated nutmeg, with an egg, and breaking the top of the shell, put out so much of the white as you may have room to slip the nutmeg into the shell; mix them together, and then let shell and all be put down the beast's throat; that done, walk him up and down, and he will soon mend.

Dew-Worm. See LUMBRICUS.

DE WIT (John), the famous pensionary, was born in 1625, at Dort; where he prosecuted his studies so diligently, that, at the age of 23, he published *Elementa*

May-Dew

De Wit.

De Wit.

menta Curvarum Linearum, one of the deepest books in mathematics at that time. After taking his degrees, and travelling, he, in 1650, became pensionary of Dort, and distinguished himself very early in the management of public affairs. He opposed with all his power the war between the English and the Dutch; and when the event justified his predictions, he was unanimously chosen pensionary of Holland. In this capacity he laboured to procure a peace with Cromwell; in which peace a secret article was introduced by one side or other, for the exclusion of the house of Orange. In the war with England after the king's restoration, when it was thought expedient, on Opdam's defeat and death, that some of their own deputies should command the fleet, he was one of the three put in commission; and wrote an accurate relation of all that happened during the expedition he was engaged in, for which, at his return, he received the solemn thanks of the States General. In 1667, he established the perpetual edict for abolishing the office of Stadtholder, to fix the liberty of the republic, as it was hoped, on a firm basis; which produced seditions and tumults, that restored the office, on pretence that the De Wits were enemies to the house of Orange, and plundered the state. The pensionary begged dismissal from his post; which was granted, with thanks for his faithful services. But the invasion of the French, and the internal divisions among the Hollanders themselves, spread every where terror and confusion; which the Orange party heightened to ruin the De Wits. Cornelius, the pensionary's brother, was imprisoned and condemned to exile; and a report being raised that he would be rescued, the mob armed, and surrounded the prison where the two brothers then were together, dragged them out, barbarously murdered them, hung the bodies on the gallows, and cut them to pieces, which many of them even broiled, and ate with savage fury. Such was the end of one of the greatest geniuses of his age; of whom Sir William Temple, who was well acquainted with him, writes with the greatest esteem and admiration. He observes, that when he was at the head of the government, he differed nothing in his manner of living from an ordinary citizen. His office, for the first ten years, brought him in little more than 300*l.* and in the latter part of his life, not above 700*l.* *per annum*. He refused a gift of 10,000*l.* from the States-General, because he thought it a bad precedent in the government. With great reason, therefore, Sir William Temple, speaking of his death, observes, "He was a person that deserved another fate, and a better return from his country, after 18 years spent in their ministry, without any care of his entertainments or ease, and little of his fortune. A man of unwearied industry, inflexible constancy, sound, clear, and deep understanding, and untainted integrity; so that whenever he was blinded, it was by the passion he had for that which he esteemed the good and interest of his state. This testimony is justly due to him from all that were well acquainted with him; and is the more willingly paid, since there can be as little interest to flatter, as honour to reproach, the dead."

Besides the works already mentioned, he wrote a book containing those maxims of government upon which he acted; which will be a never-fading monu-

N^o 100.

ment to his immortal memory. A translation of it from the original Dutch, intitled, *The true interest and political maxims of the republic of Holland*, has been printed in London; to the last edition of which, in 1746, are prefixed historical memoirs of the illustrious brothers Cornelius and John de Witt, by John Campbell, Esq;

DEXTANS, in Roman antiquity, ten ounces, or $\frac{1}{12}$ of their libra. See LIBRA.

DEXTER, in heraldry, an appellation given to whatever belongs to the right side of a shield or coat of arms: thus we say, *bend-dexter*, *dexter point*, &c.

DEXTROCHERE, or DESTROCHERE, in heraldry, is applied to the right arm painted in a shield, sometimes naked, sometimes clothed, or adorned with a bracelet; and sometimes armed, or holding some moveable or member used in the arms.

DEY, the title of the sovereign of Algiers, under the protection of the grand signior. A prince under this title was appointed by the sultan, at the request of the Turkish soldiers, in the year 1710. The term *dey* in the Turkish language, signifies an *uncle* by the mother's side; and the reason of the denomination is this: that the Turkish military consider the grand signior as their father; the republic as their mother, by which they are nourished and maintained; and the dey as the brother of the republic, and consequently the uncle of all who are under his dominion. Besides the age, experience, and valour, which are necessary qualifications of a person to be elected, he must also be a native Turk, and have made the voyage to Mecca. He has no guards nor considerable retinue. He presides at the divan, and is most distinguished by the respect and submission which are paid him.

DIABETES, in physic, an excessive discharge of urine, which comes away crude, and exceeds the quantity of liquids drank. See (the *Index* subjoined to) MEDICINE.

DIABOLUS. See DEVIL.

DIABOLUS Marinus. See RAIA.

DIABOLUS Metallorum, a title given by chemists to jupiter or tin: because, when incorporated with other metals, it renders them incapable of reduction, or at least very difficult to undergo that operation.

DIACAUSTIC CURVE, a species of the caustic curves formed by refraction.

DIACHYLON, in pharmacy, an emollient digestive plaster, composed of mucilages or viscid juices drawn from certain plants. See PHARMACY.

DIACODIUM, in pharmacy, a syrup prepared from poppy heads. It is also called the *syrupus de meconio*. See PHARMACY.

DIACOUSTICS, called also DIAPHONICS, the consideration of the properties of refracted sound, as it passes through different mediums: (See ACOUSTICS.) The word is formed from the Greek *dia per*, "thro," which intimates a passage; and *ακουω* "I hear," *q. d.* the consideration of the passage of the sounds we hear. See SOUND.

DIACRII, in antiquity, was the name of a party or faction at Athens.—That city, we read, was divided into two parties: the one favourers of an oligarchy, who would only have a few persons employed in the government; the other consisted of such as were for a democratical or popular government, wherein the whole

Dextans

Diacrii.

Diadelphia
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Diagnosis.

whole people should have a share. The first were called *diacrii*, and the latter *pediaci*; the latter inhabiting the lower, and the former the *ακρον*, or upper quarter or part of the city.—The laws of Solon imported, that Pisistratus should be chief of the *diacrii*; though the scholiast on Aristophanes's comedy *The Wasps*, affirms, that Pandion distributed the quarter of the *diacrii* among his sons and put Lycus at their head.

DIADELPHIA (*δις* "twice," and *αδελφος* "a brother"), class the 17th in the sexual system, comprehending those plants which bear hermaphrodite flowers with two sets of united stamina; but this circumstance must not be absolutely depended on. They are the *papilionacei* of Tournefort, the *irregulares tetrapetali* of Rivinus, and the *leguminosa* of Ray. See BOTANY, the *Scheme*, p. 430, and Plate CII. fig. 17.

DIADEM, in antiquity, a head-band or fillet, worn by kings as a badge of their royalty. It was made of silk, thread, or wool, and tied round the temples and forehead, the ends being tied behind, and let fall on the neck. It was usually white, and quite plain; tho' sometimes embroidered with gold, and set with pearls and precious stones. In latter times, it came to be twisted round crowns, laurels, &c. and even appears to have been worn on divers parts of the body. See CROWN.—The word comes from the Latin *diadema*; of the Greek *διαδῆμα* "a little band encompassing the head," of the verb *διαδω*, *cingo*, "I gird."

DIADEM, in heraldry, is applied to certain circles or rims serving to inclose the crowns of sovereign princes, and to bear the globe and cross, or the fleur de lis, for their crest. The crowns of sovereigns are bound, some with a greater and some with a less number of diadems.—The bandage about the heads of Moors on shields is also called *diadem*, in blazoning.

DIÆRESIS, in surgery, an operation serving to divide and separate the part when the continuity is a hindrance to the cure.

DIÆRESIS, in medicine, is the consuming of the vessels of an animal body, when from some corroding cause certain passages are made, which naturally ought not to have been; or certain natural passages are dilated beyond their ordinary dimensions, so that the humours which ought to have been contained in the vessels extravasate or run out.

DIÆRESIS, in grammar, the division of one syllable into two, which is usually noted by two points over a letter, as *aulai*, instead of *aulæ*, *dissolvienda* for *dissolventa*.

DIÆTETÆ, in Grecian antiquity, a kind of judges, of which there were two sorts, the *cleroti* and *diallacterii*. The former were public arbitrators, chosen by lot to determine all causes exceeding ten drachms, within their own tribe, and from their sentence an appeal lay to the superior courts.

The *diallacterii*, on the contrary, were private arbitrators from whose sentence their lay no appeal, and accordingly they always took an oath to administer justice without partiality.

DIAGLYPHICE, the art of cutting or engraving figures on metals, such as seals, intaglios, matrices of letters, &c. or coins for medals. See ENGRAVING.

DIAGNOSIS (from *διαγινωσκω*, to discern or distinguish), the diagnostics or the signs of a disease. They

are of two kinds, *viz.* the adjunct and pathognomonic; the first are common to several diseases, and serve only to point out the difference between diseases of the same species; the latter are those which always attend the disease, and distinguish it from all others.

DIAGNOSTIC, in medicine, a term given to those signs which indicate the present state of a disease, its nature and cause.

DIAGONAL, in geometry, a right line drawn across a quadrilateral figure, from one angle to another; by some called the *diameter*, and by others the *diametral*, of the figure. See GEOMETRY.

DIAGORAS, surnamed the *Atheist*, lived in the 91st Olympiad. He was not a native of Athens, but he philosophised there. He delighted in making verses, and had composed a poem which a certain poet stole from him. He sued the thief, who swore it was his own, and got glory by it. This tempted Diagoras to deny a Providence. The Athenians summoned him to give an account of his doctrine. He fled, and they set a price upon his head, promising a reward to any who should kill him; but he took shipping, and was cast away.

DIAGRAM, in geometry, a scheme for explaining and demonstrating the properties of any figure, whether triangle, square, circle, &c. See GEOMETRY.

DIAGRAM, among ancient musicians, the same with the scale of the moderns. See SCALE.

DIAH, DIAT, a name given by the Arabs to the punishment of retaliation. By the Mahometan law, a brother, or the next relation of a murdered person, ought to take part against the murderer, and demand his blood in reparation for that which he has shed. Before the time of Mahomet, the Arabs had a custom of putting a freeman of their prisoners to death in lieu of every slave they lost in battle, and a man for every woman that was killed. But Mahomet regulated the laws of reprisal; directing in the Alcoran, by the *diat*, that a freeman should be required for a freeman, and a slave for a slave. The Turks, probably in consequence of this law, formerly massacred almost all their prisoners of war, but they now content themselves with enslaving and selling them.

DIAHEXAPLA, or DIAHEXAPTE, among farriers, a compound medicine, so called from its containing six ingredients, *viz.* birthwort and gentian roots, juniper-berries, bay-berries, myrrh, and ivory shavings. It is commended for colds, consumptions, purfiness, and many other disorders in horses.

DIAL, an instrument serving to measure time; which, if effected by the aid of the sun, is called a *sun dial*. The word is from the Latin *dies* "day," because indicating the hour of the day. The ancients also called it *sciatherium*, from its effect by the shadow. See the article DIALING.

DIALECT, an appellation given to the language of a province in so far as it differs from that of the whole kingdom. The term, however, is more particularly used in speaking of the ancient Greek, whereof there were four dialects, the Attic, Ionic, Æolic, and Doric; each of which was a perfect language in its kind, that took place in certain countries, and had peculiar beauties.

In Great Britain, besides the grand diversity of English

Diagnostic
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Dialect.

Dialectics, lish and Scotch, almost every county has a dialect of its own, all differing considerably in pronunciation, accent, and tone, although one and the same language.

DIALECTICS, in the literary history of the ancients, that branch of logics which taught the rules and modes of reasoning. See **LOGIC**, Part III.

Zeno Eleates was the first who discovered the natural series of principles and conclusions observed in reasoning, and formed an art thereof in form of a dialogue: which, for this reason, was called *dialectica*.

The *dialectica* of the ancients is usually divided into several kinds; the first was the *eleatica*, that of Zeno Eleates, which was threefold; viz. *consecutionum*, *colloquutionum*, and *contentionum*. The first consisting of rules for deducing or drawing conclusions. The second, the art of dialogue; which became of such universal use in philosophy, that all reasoning was called *interrogation*: then, syllogism being laid aside, the philosophers did all by dialogue; it lying on the respondent to conclude and argue from the several concessions made. The last part of Zeno's dialectics, *Epicurum*, was contentious, or the art of disputing and contradicting; though some, particularly Laertius, ascribe this part to Protagoras, a disciple of Zeno.

The second is the *dialectica megarica*, whose author is Euclid, not the mathematician, but another of Megara. He gave much into the method of Zeno and Protagoras: though there are two things appropriated to him: the first, that he impugned the demonstrations of others, not by assumptions, but conclusions; continually making illations, and proceeding from consequence to consequence: the second, that he set aside all arguments drawn from comparisons of similitude as invalid.

He was succeeded by Eubulides, from whom the sophistic way of reasoning is said to be derived. In his time the art is described as manifold: *mentiens*, *fallens*, *electra*, *obvelata*, *arcevalis*, *cornuta*, and *calva*. See **SOPHISM**.

The third is the dialectics of Plato, which he proposes as a kind of analysis to direct the human mind, by dividing, defining, and bringing things to the first truth; where being arrived, and stopped there a little, it applies itself to explain sensible things, but with a

view to return to the first truth, where alone it can rest. Such is the idea of Plato's analysis.

The fourth is Aristotle's dialectics; containing the doctrine of simple words, delivered in his book of *Prædicaments*; the doctrine of propositions, in his book *De Interpretatione*; and that of the several kinds of syllogism, in his books of *Analytics*, *Topics*, and *Elenchuses*.

The fifth is the dialectics of the Stoics; which they call a part of philosophy, and divide into rhetoric and dialectic; to which some add the definitive, whereby things are justly defined; comprehending likewise the canons or criterions of truth.

The Stoics, before they come to treat of syllogisms, have two principal places; the one about the signification of words, the other about the things signified. On occasion of the first, they consider abundance of things belonging to the grammarian's province: what, and how many letters; what is a word, diction, speech, &c. On occasion of the latter, they consider things themselves, not as without the mind, but as in it, received in it by means of the senses. Accordingly, they first teach, that *nil sit in intellectu, quod non prius fuerit in sensu*; "whatever is in the mind came thither by the senses;" and that *aut incurfione sui*, as Plato, who meets the fight; *aut similitudine*, as Cæsar by his effigy; *aut proportione*, either by enlarging as a giant, or by diminishing as a pygmy; *aut translatione*, as a Cyclops; *aut compositione*, as a Centaur; *aut contrario*, as death; *aut privatione*, as a blind man.

The sixth is Epicurus's dialectics; for though he seems to have despised dialectic, he cultivated it with vigour. He was only averse to that of the Stoics; who he thought attributed too much to it, as pronouncing him alone wise who was well versed in dialectics.

For this reason, Epicurus, seeming to set aside the common dialectics, had recourse to another way; viz. to certain canons which he substituted in their stead, the collection whereof he called *canonica*; and as all questions in philosophy are either *de re* or *de voce*, he gave separate rules for each. See **EPICUREANS**.

DIALIA, in antiquity, sacrifices performed by the flamen dialis. See **FLAMEN**.

D I A L I N G,

THE art of drawing dials on the surface of any given body or plane. The Greeks and the Latins called this art *gnomonica* and *sciatherica*, by reason it distinguishes the hours by the shadow of the gnomon. Some call it *photo-sciatherica*, because the hours are sometimes shown by the light of the sun. Lastly, others call it *horologiography*.

¹
Utility of
this art.

Dialing is a most necessary art: for notwithstanding we are provided with moving machines, such as clocks and watches, to show time; yet these are apt to be out of order, go wrong, and stop: consequently they stand frequently in need of regulation by some invariable instrument, as a dial; which being rightly constructed and duly placed, will always, by means of the sun, inform us of the true solar time; which time being corrected by the equation table published annually in the epheme-

rides, almanacks, and other books, will be the mean time to which clocks and watches are to be set.

The antiquity of dials is beyond doubt. Some attribute their invention to Anaximenes Milesius; and others to Thales. Vitruvius mentions one made by the ancient Chaldee historian Berosus, on a reclining plane, almost parallel to the equinoctial. Aristarchus Samius invented the hemispherical dial. And there were some spherical ones, with a needle for a gnomon. The discus of Aristarchus was an horizontal dial, with its limb raised up all around, to prevent the shadows stretching too far.

But it was late ere the Romans became acquainted with dials. The first sun-dial at Rome was set up by Papirius Cursor, about the year of the city 460; before which time, says Pliny, there is no mention of any account

²
History.

Fig. 1.

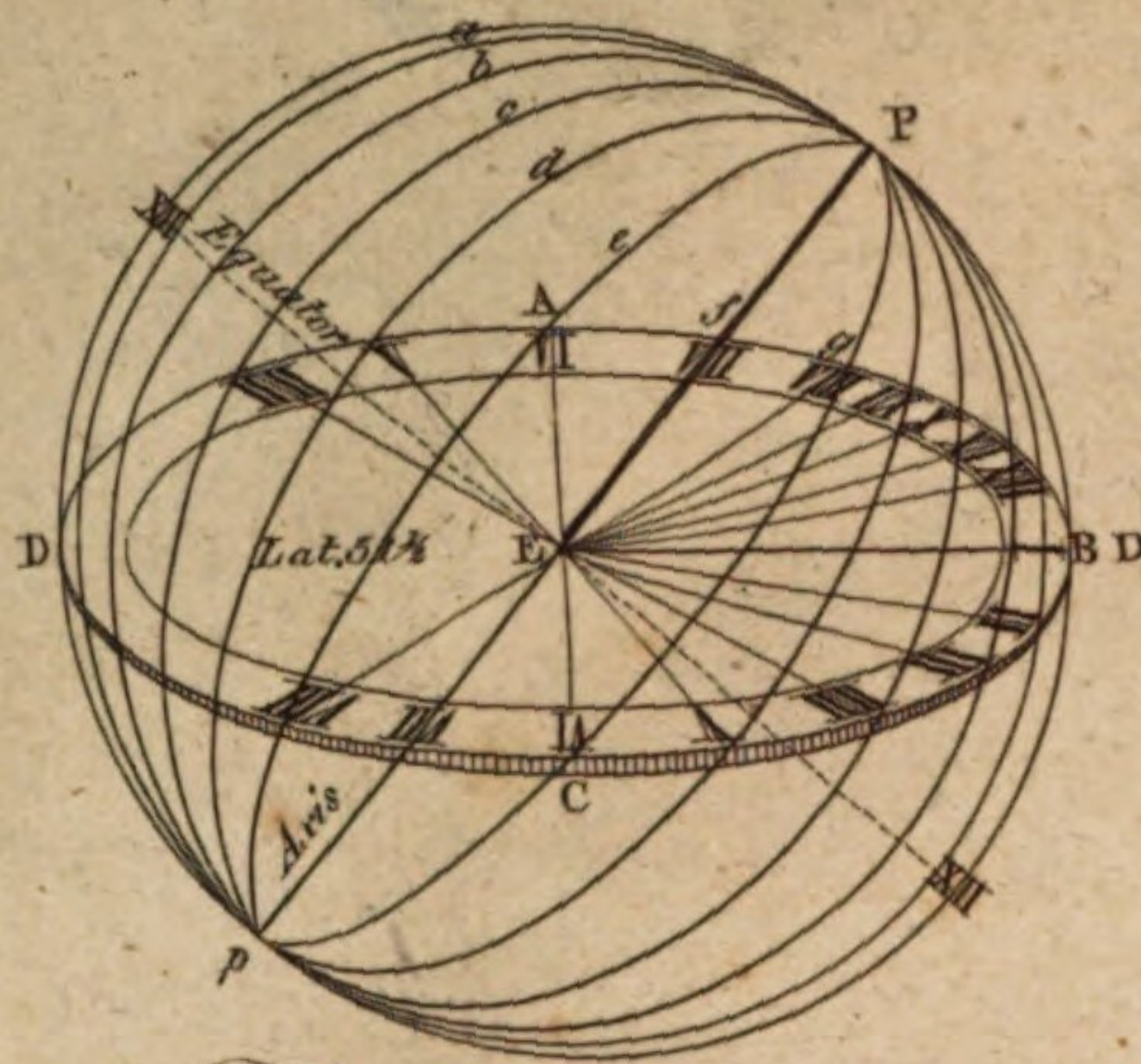


Fig. 2.

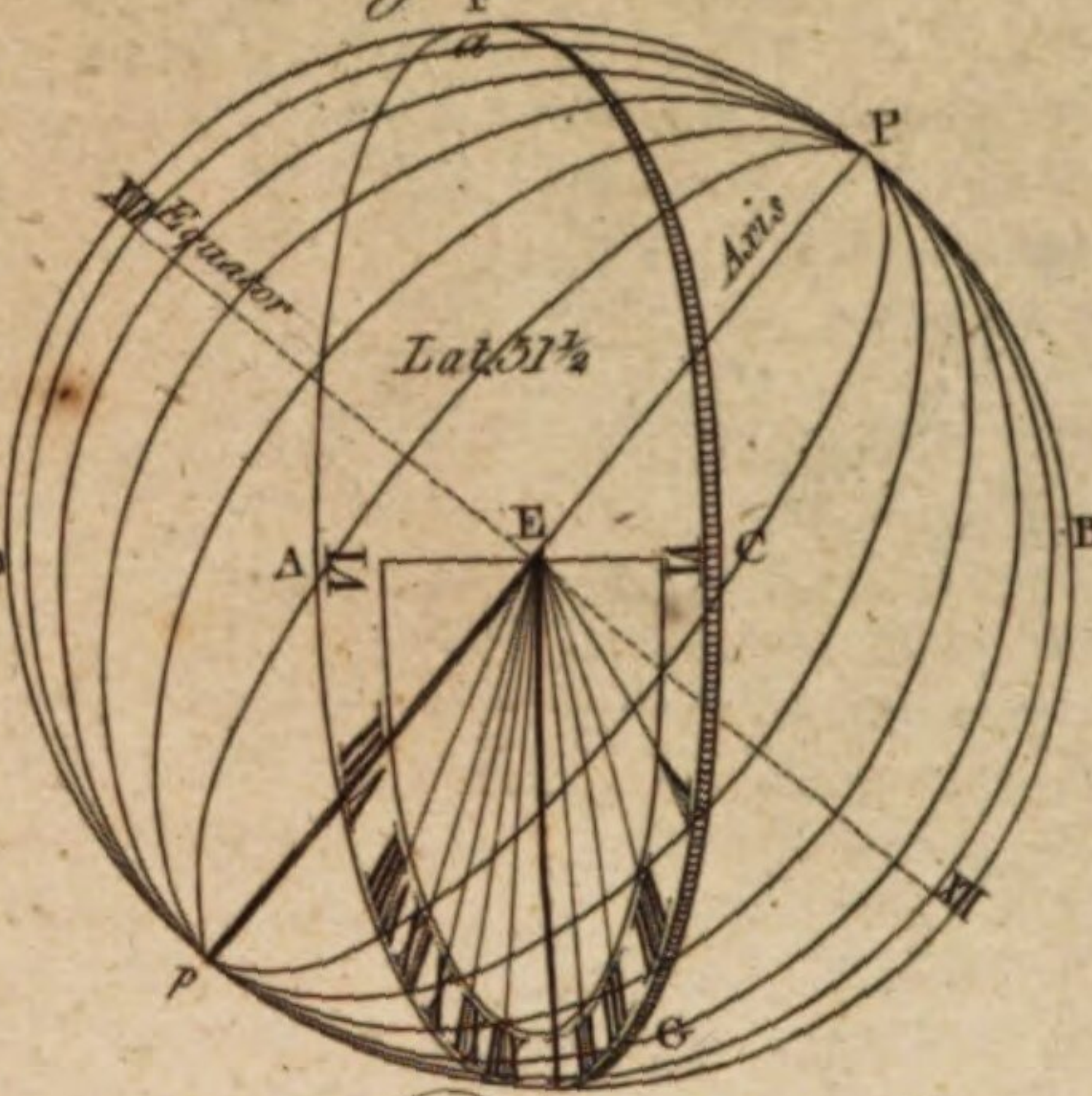


Fig. 3.

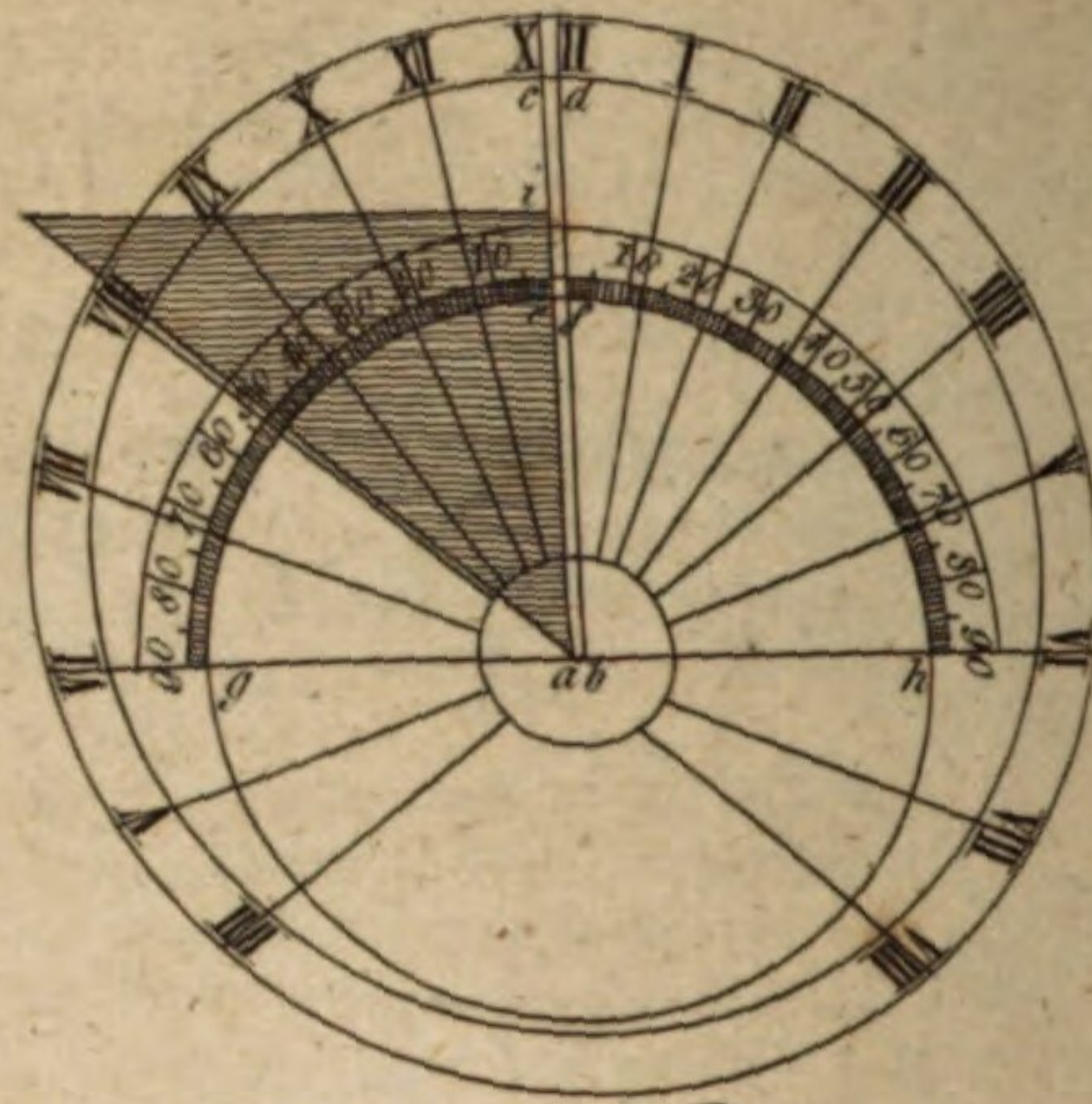


Fig. 5.

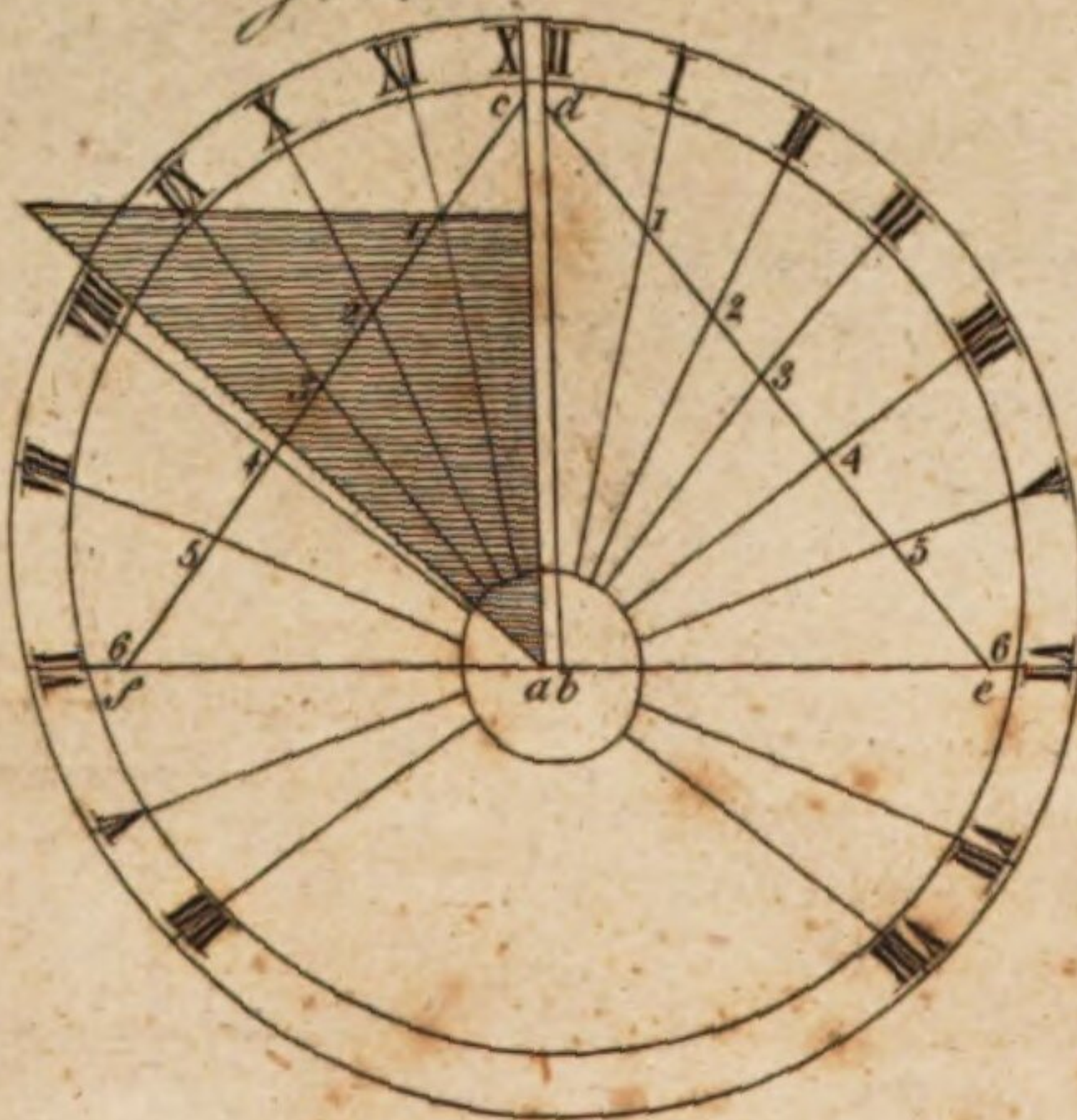


Fig. 4.

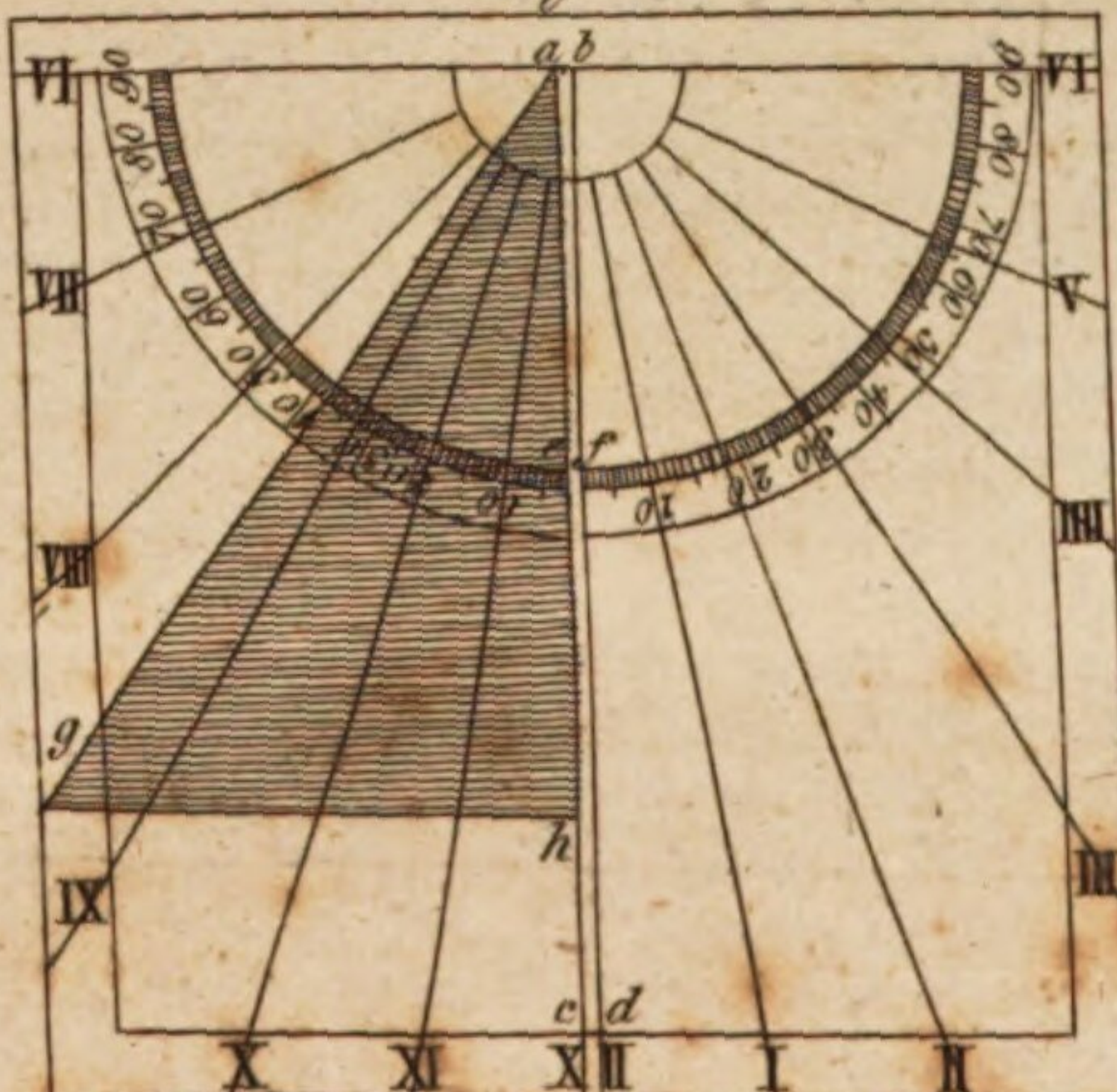


Fig. 6.

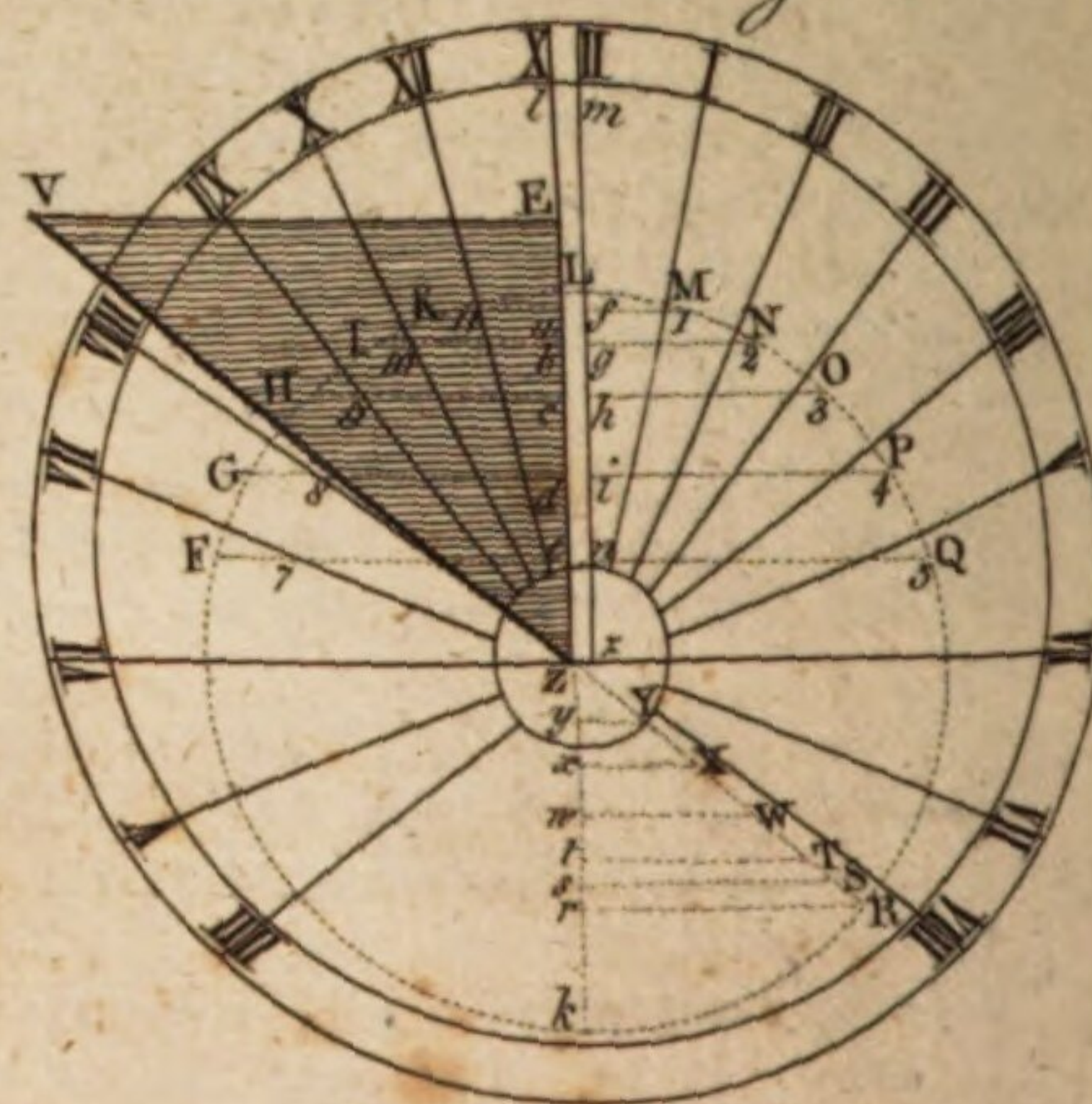
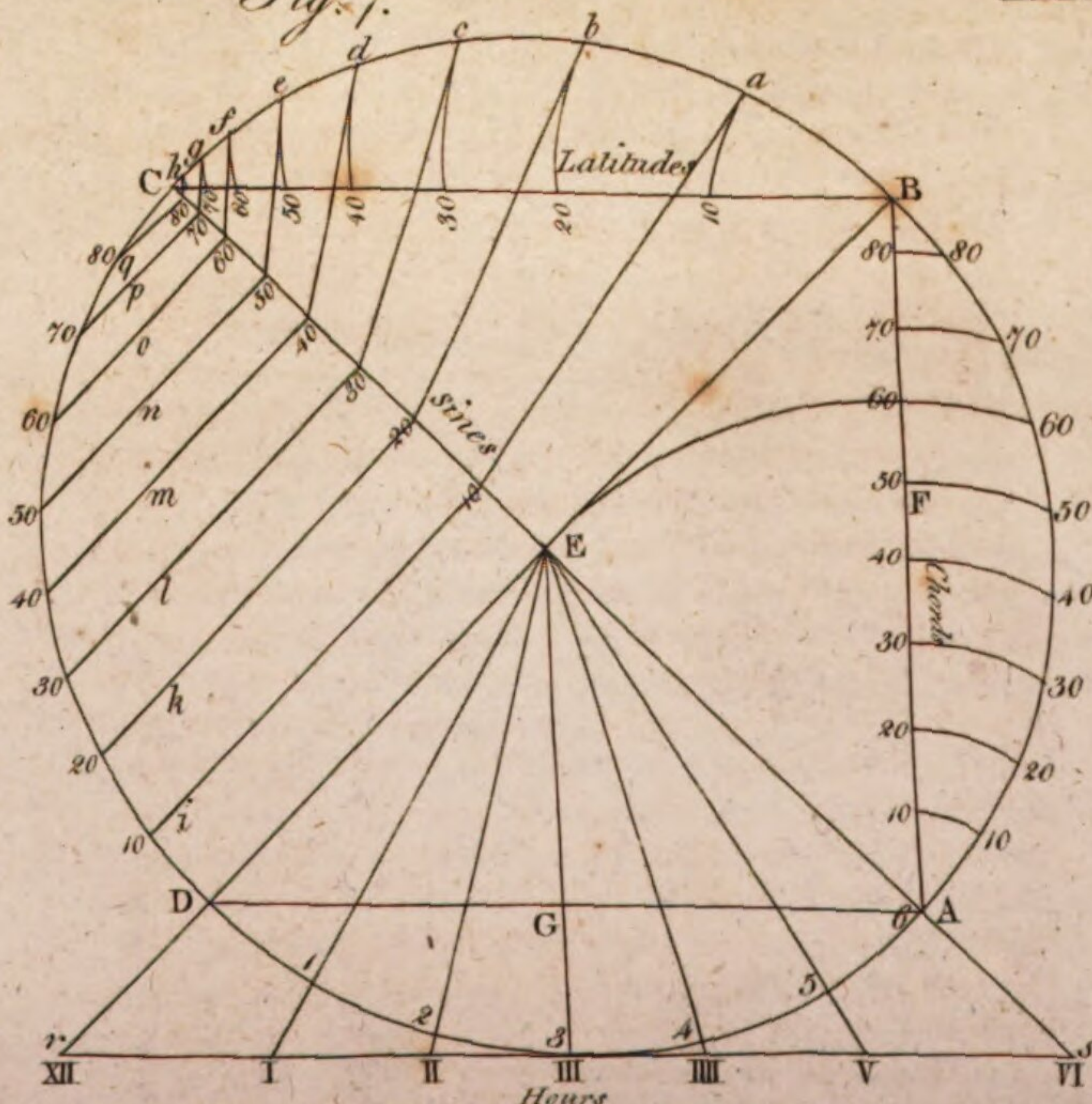


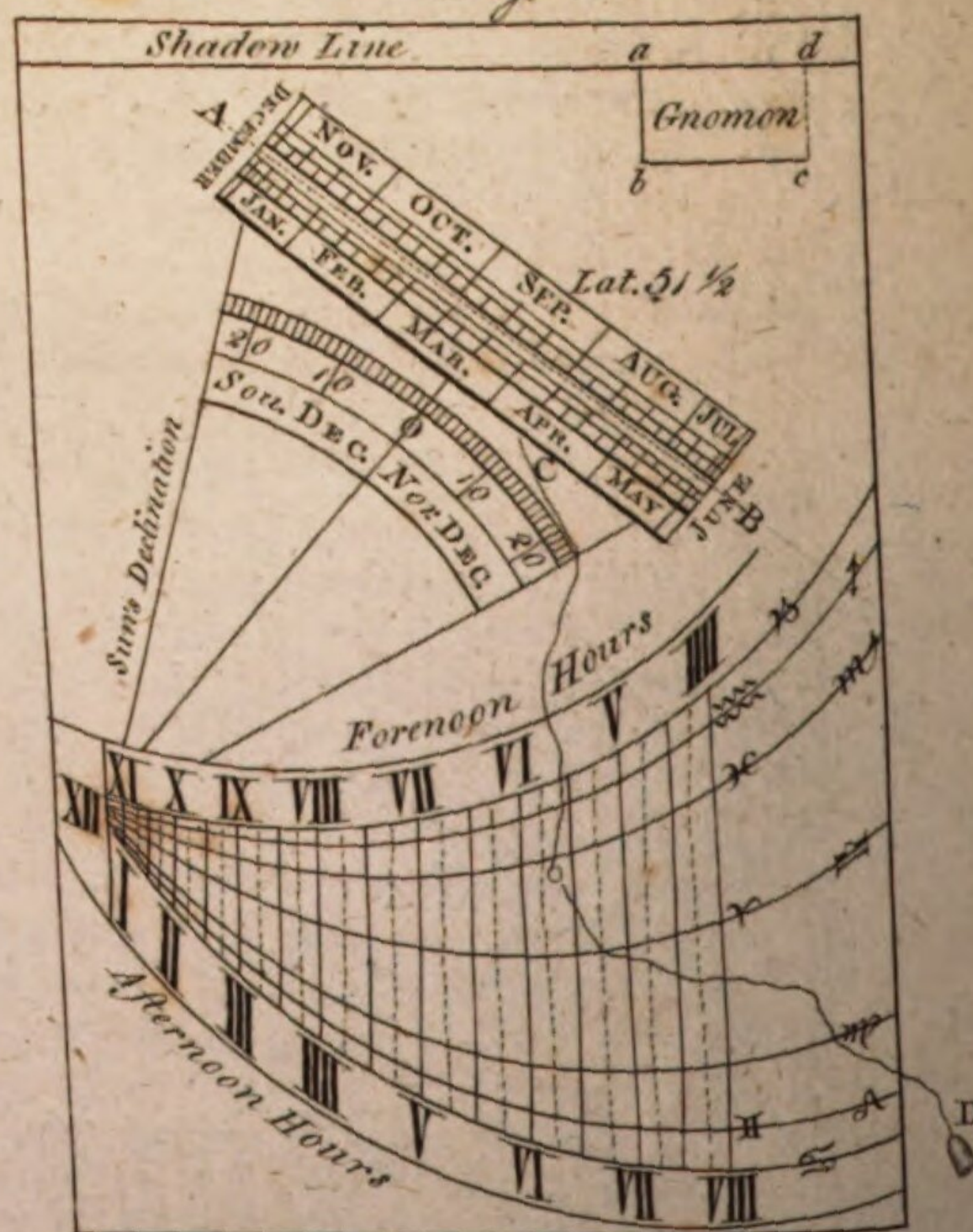
Fig. 7.



Line of Chords
0 10 20 30 40 50 60 70 80 90

Scale of Latitudes
Scale of Hours

Fig. 8.



The Line of Chords
The Line of Latitudes
The Line of Hours

account of time but by the sun's rising and setting: it was set up at or near the temple of Quirinus, but went ill. About 30 years after, M. Valerius Messala being consul, brought out of Sicily another dial, which he set up on a pillar near the rostrum; but for want of its being made for that latitude, it could not go true. They made use of it 99 years; till Martius Philippus set up another more exact.

But there seems to have been dials among the Jews much earlier than any of these. Witness the dial of Ahaz; who began to reign 400 years before Alexander, and within 12 years of the building of Rome; mentioned by Isaiah, chap. xxxviii. verse 8.

The first professed writer on dialing is Clavius; who demonstrates all, both the theory and the operations, after the rigid manner of the ancient mathematicians; but so intricately, that few, we dare say, ever read them all. Dechales and Ozanam give much easier demonstrations in their *Courses*, and Wolfius in his *Elements*. M. Picard has given a new method of making large dials, by calculating the hour-lines; and M. de la Hire, in his *Dialing*, printed in 1683, a geometrical method of drawing hour-lines from certain points determined by observation. Eberhardus Welperus, in 1625, published his *Dialing*, wherein he lays down a method of drawing the primary dials on a very easy foundation. The same foundation is described at length by Sebastian Munster, in his *Rudimenta Mathematica*, published in 1551. Sturmius, in 1672, published a new edition of Welperus's *Dialing*, with the addition of a whole second part, about inclining and declining dials, &c. In 1708, the same work, with Sturmius's additions, was republished, with the addition of a fourth part, containing Picard's and de la Hire's methods of drawing large dials. Paterfon, Michael, and Muller, have each wrote on dialing, in the German tongue; Coetfius in his *Horologiographia Plana*, printed in 1689; Gauppenius, in his *Gnomonica Mechanica*; Bion, in his *Use of Mathematical Instruments*; the late ingenious Mr Ferguson, in his *Select Lectures*; Mr Emmerfon, in his *Dialing*; and Mr W. Jones, in his *Instrumental Dialing*.

3
Definitions.

A *Dial*, accurately defined, is a plane, upon which lines are described in such a manner, that the shadow of a wife, or of the upper edge of another plane, erected perpendicularly on the former, may show the true time of the day.

The edge of the plane by which the time of the day is found, is called the *stile of the dial*, which must be parallel to the earth's axis; and the line on which the said plane is erected, is called the *substile*.

The angle included between the substile and stile, is called the *elevation or height of the stile*.

Those dials whose planes are parallel to the plane of the horizon, are called *horizontal dials*; and those dials whose planes are perpendicular to the plane of the horizon, are called *vertical or erect dials*.

Those erect dials, whose planes directly front the north or south, are called *direct north or south dials*; and all other erect dials are called *decliners*, because their planes are turned away from the north or south.

Those dials whose planes are neither parallel nor perpendicular to the plane of the horizon, are called *inclining or reclining dials*, according as their planes make

acute or obtuse angles with the horizon; and if their planes are also turned aside from facing the south or north, they are called *declining-inclining* or *declining-reclining dials*.

The intersection of the plane of the dial, with that of the meridian, passing through the stile, is called the *meridian of the dial*, or the *hour-line of XII*.

Those meridians, whose planes pass through the stile, and make angles of 15, 30, 45, 60, 75, and 90 degrees with the meridian of the place (which marks the hour-line of XII.) are called *hour-circles*; and their intersections with the plane of the dial are called *hour-lines*.

In all declining dials, the substile makes an angle with the hour-line of XII. and this angle is called the *distance of the substile from the meridian*.

The declining plane's difference of longitude, is the angle formed at the intersection of the stile and plane of the dial, by two meridians; one of which passes thro' the hour-line of XII. and the other through the substile.

Thus much being premised concerning dials in general, we shall now proceed to explain the different methods of their construction.

If the whole earth *aPcp*, were transparent, and hollow, like a sphere of glass, and had its equator divided into 24 equal parts by so many meridian semicircles, *a, b, c, d, e, f, g, &c.* one of which is the geographical meridian of any given place, as London (which is supposed to be at the point *a*;) and if the hour of XII were marked at the equator, both upon that meridian and the opposite one, and all the rest of the hours in order on the rest of the meridians, those meridians would be the hour circles of London: then, if the sphere had an opaque axis, as *PEp*, terminating in the poles *P* and *p*, the shadow of the axis would fall upon every particular meridian and hour, when the sun came to the plane of the opposite meridian, and would consequently show the time at London, and at all other places on the meridian of London.

If this sphere was cut through the middle by a solid plane *ABCD*, in the rational horizon of London, one half of the axis *EP* would be above the plane, and the other half below it; and if straight lines were drawn for the centre of the plane to those points where its circumference is cut by the hour circles of the sphere, those lines would be the hour-lines of a horizontal dial from London: for the shadow of the axis would fall upon each particular hour-line of the dial, when it fell upon the like hour-circle of the sphere.

If the plane which cuts the sphere be upright, as *AFCG*, touching the given place (London) at *F*, and directly facing the meridian of London, it will then become the plane of an erect direct south-dial: and if right lines be drawn from its center *E* to those points of its circumference where the hour-circles of the sphere cut it, these will be the hour-lines of a vertical or direct south-dial for London, to which the hours are to be set as in the figure (contrary to those on a horizontal dial), and the lower half *Ep* of the axis will cast a shadow on the hour of the day in this dial, at the same time that it would fall upon the like hour-circle of the sphere, if the dial plane was not in the way.

If the plane (still facing the meridian) be made to incline,

Plate
CLVIII.
fig. 1.

4
The universal principle on which dialing depends.

5
Horizontal dial.

Fig. 2.

6
Vertical dial.

Plate
CLVIII.7
Inclining,
reclining,
and declin-
ing dials.

incline, or recline, any given number of degrees, the hour-circles of the sphere will still cut the edge of the plane in those points to which the hour-lines must be drawn straight from the center; and the axis of the sphere will cast a shadow on these lines at the respective hours. The like will still hold, if the plane be made to decline by any given number of degrees from the meridian toward the east or west: provided the declination be less than 90 degrees, or the reclination be less than the co-latitude of the place: and the axis of the sphere will be a gnomon, or stile, for the dial. But it cannot be a gnomon, when the declination is quite 90 degrees, nor when the reclination is equal to the co-latitude; because, in these two cases, the axis has no elevation above the plane of the dial.

And thus it appears, that the plane of every dial represents the plane of some great circle upon the earth; and the gnomon of the earth's axis, whether it be a small wire as in the above figures, or the edge of a thin plate, as in the common horizontal dials.

The whole earth, as to its bulk, is but a point, if compared to its distance from the sun; and therefore, if a small sphere of glass be placed upon any part of the earth's surface, so that its axis be parallel to the axis of the earth, and the sphere have such lines upon it, and such planes within it, as above described; it will show the hours of the day as truly as if it were placed at the earth's center, and the shell of the earth were as transparent as glass.

Fig. 1, 2.

8
Dialing by
the com-
mon terre-
strial globe.

But because it is impossible to have a hollow sphere of glass perfectly true, blown round a solid plane; or if it was, we could not get at the plane within the glass to set it in any given position; we make use of a wire-sphere to explain the principles of dialing, by joining 24 semicircles together at the poles, and putting a thin flat plate of brass within it.

A common globe of 12 inches diameter, has generally 24 meridian semicircles drawn upon it. If such a globe be elevated to the latitude of any given place, and turned about until one of these meridians cut the horizon in the north point, where the hour of XII is supposed to be marked, the rest of the meridians will cut the horizon at the respective distances of all the other hours from XII. Then if these points of distance be marked on the horizon, and the globe be taken out of the horizon, and a flat board or plate be put into its place, even with the surface of the horizon; and if straight lines be drawn from the centre of the board, to those points of distance on the horizon which were cut by the 24 meridian semicircles; these lines will be the hour-lines of a horizontal dial for that latitude, the edge of whose gnomon must be in the very same situation that the axis of the globe was, before it was taken out of the horizon: that is, the gnomon must make an angle with the plane of the dial, equal to the latitude of the place for which the dial is made.

If the pole of the globe be elevated to the co-latitude of the given place, and any meridian be brought to the north point of the horizon, the rest of the meridians will cut the horizon in the respective distances of all the hours from XII, for a direct south dial, whose gnomon must be an angle with the plane of the dial, equal to the co-latitude of the place; and the hours must be set the contrary way on this dial to what they are on the horizontal.

But if your globe have more than 24 meridian semicircles upon it, you must take the following method for making *horizontal* and *south dials*.

Plate
CLVIII.9
To con-
struct a ho-
rizontal
dial.

Elevate the pole to the latitude of your place, and turn the globe until any particular meridian (suppose the first) comes to the north point of the horizon, and the opposite meridian will cut the horizon in the south. Then, set the hour-index to the uppermost XII on its circle; which done, turn the globe westward until 15 degrees of the equator pass under the brazen meridian, and then the hour-index will be at I (for the sun moves 15 degrees every hour), and the first meridian will cut the horizon in the number of degrees from the north point that I is distant from XII. Turn on until other 15 degrees of the equator pass under the brazen meridian, and the hour-index will then be at II, and the first meridian will cut the horizon in the number of degrees that II is distant from XII: and so, by making 15 degrees of the equator pass under the brazen meridian, for every hour, the first meridian of the globe will cut the horizon in the distances of all the hours from XII to VI, which is just 90 degrees; and then you need go no farther, for the distances of XI, X, IX, VIII, VII, and VI, in the forenoon, are the same from XII, as the distances of I, II, III, IV, V, and VI, in the afternoon: and these hour-lines continued through the center, will give the opposite hour-lines on the other half of the dial.

Thus, to make a horizontal dial for the latitude of London, which is $51\frac{1}{2}$ degrees north, elevate the north pole of the globe $51\frac{1}{2}$ degrees above the north point of the horizon; and then turn the globe, until the first meridian (which is that of London on the English terrestrial globe) cuts the north point of the horizon, and set the hour-index to XII at noon.

Then turning the globe westward until the index points successively to I, II, III, IV, V, and VI, in the afternoon, or until 15, 30, 45, 60, 75, and 90 degrees of the equator pass under the brazen meridian, you will find that the first meridian of the globe cuts the horizon in the following numbers of degrees from the north towards the east, viz. $11\frac{2}{3}$, $24\frac{1}{4}$, $38\frac{1}{2}$, $53\frac{1}{2}$, $71\frac{1}{2}$, and 90; which are the respective distances of the above hours from XII upon the plane of the horizon.

To transfer these, and the rest of the hours, to a horizontal plane, draw the parallel right lines *ac* and *db*, upon that plane, as far from each other as is equal to the intended thickness of the gnomon or stile of the dial, and the space included between them will be the meridian or twelve o'clock line on the dial. Cross this meridian at right angles with the six o'clock line *gh*, and setting one foot of your compasses in the intersection *a*, as a center, describe the quadrant *ge* with any convenient radius or opening of the compasses: then, setting one foot in the intersection *b*, as a center, with the same radius describe the quadrant *fh*, and divide each quadrant into 90 equal parts or degrees, as in the figure.

Because the hour-lines are less distant from each other about noon, than in any other part of the dial, it is best to have the centres of these quadrants at a little distance from the centre of the dial plane, on the side opposite to XII, in order to enlarge the hour-distances thereabouts, under the same angles on the plane. Thus, the

Fig. 3.

Plate
CLVIII.

the centre of the plane is at *C*, but the centres of the quadrants are at *a* and *b*.

Fig. 3.

Lay a ruler over the point *b* (and keeping it there for the center of all the afternoon hours in the quadrant *f b*) draw the hour-line of I through $11\frac{3}{4}$ degrees in the quadrant; the hour-line of II, through $24\frac{1}{4}$ degrees; of III, through $38\frac{1}{4}$ degrees; IIII, through $53\frac{1}{4}$; and V, through $71\frac{1}{4}$; and because the sun rises about four in the morning, on the longest days at London, continue the hour-lines of IIII and V in the afternoon through the center *b* to the opposite side of the dial.—This done, lay the ruler to the center *a* of the quadrant *e g*; and through the like divisions or degrees of that quadrant, viz. $11\frac{3}{4}$, $24\frac{1}{4}$, $38\frac{1}{4}$, $53\frac{1}{4}$, and $71\frac{1}{4}$, draw the forenoon hour-lines of XI, X, IX, VIII, and VII; and because the sun sets not before eight in the evening on the longest days, continue the hour-lines of VII and VIII in the forenoon, through the center *a*, to VII and VIII in the afternoon; and all the hour-lines will be finished on this dial; to which the hours may be set, as in the figure.

Lastly, through $51\frac{1}{2}$ degrees of either quadrant, and from its center, draw the right line *a g* for the hypotenuse or axis of the gnomon *a g i*; and from *g*, let fall the perpendicular *g i*, upon the meridian line *a i*, and there will be a triangle made, whose sides are *a g*, *g i*, and *i a*. If a plate similar to this triangle be made as thick as the distance between the lines *a c* and *b d*, and set upright between them, touching at *a* and *b*, its hypotenuse *a g* will be parallel to the axis of the world, when the dial is truly set, and will cast a shadow on the hour of the day.

N. B. The trouble of dividing the two quadrants may be saved, if you have a scale with a line of chords upon it (as represented in the plate); for if you extend the compasses from 0 to 60 degrees of the line of chords, and with that extent, as a radius, describe the two quadrants upon their respective centers, the above distances may be taken with the compasses upon the lines, and set off upon the quadrants.

Fig. 4.
IO
An erect
south dial.

To make an erect direct south dial. Elevate the pole to the co-latitude of your place, and proceed in all respects as above taught for the horizontal dial, from VI in the morning to VI in the afternoon; only the hours must be reversed, as in the figure; and the hypotenuse *a g* of the gnomon *a g f*, must make an angle with the dial-plane equal to the co-latitude of the place. As the sun can shine no longer on this dial than from six in the morning until six in the evening, there is no occasion for having any more than 12 hours upon it.

II
Erect de-
clining
dial.

To make an erect dial, declining from the south towards the east or west. Elevate the pole to the latitude of your place, and screw the quadrant of altitude to the zenith. Then, if your dial declines towards the east (which we shall suppose it to do at present), count in the horizon the degrees of declination, from the east point towards the north, and bring the lower end of the quadrant to that degree of declination at which the reckoning ends. This done, bring any particular meridian of your globe (as suppose the first meridian) directly under the graduated edge of the upper part of the brazen meridian, and set the hour to XII at noon. Then, keeping the quadrant of altitude at the degree of declination in the horizon, turn the globe eastward

on its axis, and observe the degrees cut by the first meridian in the quadrant of altitude (counted from the zenith) as the hour-index comes to XI, X, IX, &c. in the forenoon, or as 15, 30, 45, &c. degrees of the equator pass under the brazen meridian at these hours respectively; and the degrees then cut in the quadrant by the first meridian, are the respective distances of the forenoon hours from XII on the plane of the dial.—Then, for the afternoon hours, turn the quadrant of altitude round the zenith, until it comes to the degree in the horizon opposite to that where it was placed before; namely, as far from the west point of the horizon towards the south, as it was set at first from the east point towards the north; and turn the globe westward on its axis, until the first meridian comes to the brazen meridian again, and the hour-index to XII: then, continue to turn the globe westward, and as the index points to the afternoon hours I, II, III, &c. or as 15, 30, 45, &c. degrees of the equator pass under the brazen meridian, the first meridian will cut the quadrant of altitude in the respective number of degrees from the zenith that each of these hours is from XII on the dial.—And note, that when the first meridian goes off the quadrant at the horizon in the afternoon, the hour-index shows the time when the sun will come upon this dial; and when it goes off the quadrant in the afternoon, the index will point to the time when the sun goes off the dial.

Having thus found all the hour-distances from XII, lay them down upon your dial-plane, either by dividing a semicircle into two quadrants of 90 degrees each (beginning at the hour-line of XII), or by the line of chords, as above directed.

In all declining dials, the line on which the stile or gnomon stands (commonly called the *substile-line*) makes an angle with the twelve o'clock line, and falls among the forenoon hour-lines, if the dial declines towards the east; and among the afternoon hour-lines, when the dial declines towards the west; that is, to the left hand from the twelve o'clock line in the former case, and to the right hand from it in the latter.

To find the distance of the substile from the twelve o'clock line; if your dial declines from the south toward the east, count the degrees of that declination in the horizon from the east point towards the north, and bring the lower end of the quadrant of altitude to that degree of declination where the reckoning ends: then, turn the globe until the first meridian cuts the horizon in the like number of degrees, counted from the south point towards the east; and the quadrant and first meridian will then cross one another at right angles; and the number of degrees of the quadrant, which are intercepted between the first meridian and the zenith, is equal to the distance of the substile line from the twelve o'clock line; and the number of degrees of the first meridian, which are intercepted between the quadrant and the north pole, is equal to the elevation of the stile above the plane of the dial.

If the dial declines westward from the south, count that declination from the east point of the horizon towards the south, and bring the quadrant of altitude to the degree in the horizon at which the reckoning ends; both for finding the forenoon hours, and distance of the substile from the meridian: and for the afternoon hours, bring the quadrant to the opposite degree in the horizon,

Plate
CLVIII.

Plate
CLVIII.

zon, namely, as far from the west towards the north, and then proceeds in all respects as above.

Thus we have finished our declining dial; and in so doing we made four dials, viz.

1. A north dial, declining eastward by the same number of degrees. 2. A north dial, declining the same number west. 3. A south dial, declining east. And, 4. A south dial, declining west. Only, placing the proper number of hours, and the stile or gnomon respectively, upon each plane. For (as above mentioned) in the south-west plane, the substilar-line falls among the afternoon hours; and in the south-east, of the same declination, among the forenoon hours, at equal distances from XII. And so all the morning hours on the west decliner will be like the afternoon hours on the east decliner: the south-east decliner will produce the north-west decliner; and the south-west decliner the north-east decliner, by only extending the hour-lines, stile and substile, quite through the center: the axis of the stile (or edge that casts the shadow on the hour of the day) being in all dials whatever parallel to the axis of the world, and consequently pointing towards the north pole of the heaven in north latitudes, and towards the south pole in south latitudes.

12
An easy
method for
construct-
ing of dials.

But because every one who would like to make a dial, may perhaps not be provided with a globe to assist him, and may probably not understand the method of doing it by logarithmic calculation; we shall show how to perform it by the plain dialing lines, or scale of latitudes and hours (as represented on the Plate), and which may be had on scales commonly sold by the mathematical instrument makers.

This is the easiest of all mechanical methods, and by much the best, when the lines are truly divided: and not only the half hours and quarters may be laid down by all of them, but every fifth minute by most, and every single minute by those where the line of hours is a foot in length.

Fig. 5.

Having drawn your double meridian line ab, cd , on the plane intended for a horizontal dial, and crossed it at right angles by the six o'clock line fe (as in fig. 3.), take the latitude of your place with the compasses, in the scale of latitudes, and set that extent from c to e , and from a to f , on the six o'clock line: then, taking the whole six hours between the points of the compasses in the scale of hours, with that extent set one foot in the point c , and let the other foot fall where it will upon the meridian line cd , as at d . Do the same from f to b , and draw the right lines ed and fb , each of which will be equal in length to the whole scale of hours. This done, setting one foot of the compasses in the beginning of the scale at XII, and extending the other to each hour on the scale, lay off these extents from d to e for the afternoon hours, and from b to f for those of the forenoon: this will divide the lines de and bf in the same manner as the hour-scale is divided at 1, 2, 3, 4, and 6; on which the quarters may also be laid down, if required. Then, laying a ruler on the point c , draw the first five hours in the afternoon, from that point, through the dots at the numeral figures, 1, 2, 3, 4, 5, on the line de ; and continue the lines of IIII and V through the center c to the other side of the dial, for the like hours of the morning: which done, lay the ruler on the point a , and draw the last five hours in the forenoon through the

dots 5, 4, 3, 2, 1, on the line fb ; continuing the hour-lines of VII and VIII through the center a to the other side of the dial, for the like hours of the evening; and set the hours to their respective lines, as in the figure. Lastly, make the gnomon the same way as taught above for the horizontal dial, and the whole will be finished.

To make an erect south-dial; take the co-latitude of your place from the scale of latitudes, and then proceed in all respects for the hour-line as in the horizontal dial; only reversing the hours, as in fig. 4. and making the angle of the stile's height equal to the co-latitude.

But, lest the young dialist should have neither globe nor wooden scale, we shall now show him how he may make a dial without any of these helps. Only, if he has not a line of chords, he must divide a quadrant into 90 equal parts or degrees for taking the proper angle of the stile's elevation; which is easily done.

With any opening of the compasses, as ZL , describe the two semicircles LFk and LQk , upon the centers Z and z , where the six o'clock line crosses the double meridian line, and divide each semicircle into 12 equal parts, beginning at L (though, strictly speaking, only the quadrants from L to the six o'clock line need be divided); then connect the divisions which are equidistant from L , by the parallel lines KM, IN, HO, GP , and FQ . Draw VZ for the hypotenuse of the stile, making the angle VZE equal to the latitude of your place; and continue the line VZ to R . Draw the line Rr parallel to the six o'clock line; and set off the distance aK from Z to T , the distance bI from Z to X , cH from Z to W , dG from Z to T , and eF from Z to S . Then draw the lines Ss, Tt, Ww, Xx , and Ty , each parallel to Rr . Set off the distance yT from a to 11, and from f to 1; the distance xX from b to 10, and from g to 2; wW from c to 9, and from h to 3; tT from d to 8, and from i to 4; sS from e to 7, and from n to 5. Then laying a ruler to the center Z , draw the forenoon hour-lines through the points 11, 10, 9, 8, 7; and laying it to the center z , draw the afternoon lines through the points 1, 2, 3, 4, 5; continuing the forenoon lines of VII and VIII through the center Z , to the opposite side of the dial, for the like afternoon hours; and the afternoon lines IIII and V through the center z , to the opposite side, for the like morning hours. Set the hours to these lines as in the figure, and then erect the stile or gnomon, and the horizontal dial will be finished.

Fig. 6.

13.
Horizontal
dial.

To construct a south dial, draw the line VZ , making an angle with the meridian ZL equal to the co-latitude of your place; and proceed in all respects as in the above horizontal dial for the same latitude, reversing the hours as in fig. 4. and making the elevation of the gnomon equal to the co-latitude.

Perhaps it may not be unacceptable to explain the method of constructing the dialing lines, and some others; which is as follows:

With any opening of the compasses, as EA , according to the intended length of the scale, describe the circle $ADCB$, and cross it at right angles by the diameters CEA and DEB . Divide the quadrant AB first into 9 equal parts, and then each part into 10; so shall the quadrant be divided into 90 equal parts or degrees.

14
Dialing
lines, how
constructed.
Fig. 7.

Plate
CLVIII.

degrees. Draw the right line AFB for the chord of this quadrant; and setting one foot of the compasses in the point A , extend the other to the several divisions of the quadrant, and transfer these divisions to the line AFB by the arcs 10, 10, 20, 20, &c. and this will be a line of chords, divided into 90 unequal parts; which, if transferred from the line back again to the quadrant, will divide it equally. It is plain by the figure, that the distance from A to 60 in the line of chords, is just equal to AE , the radius of the circle from which that line is made; for if the arc 60, 60, be continued, of which A is the centre, it goes exactly through the centre E of the arc AB .

And therefore, in laying down any number of degrees on a circle, by the line of chords, you must first open the compasses so as to take in just 60 degrees upon that line, as from A to 60: and then, with that extent, as a radius, describe a circle, which will be exactly of the same size with that from which the line was divided: which done, set one foot of the compasses in the beginning of the chord line, as at A , and extend the other to the number of degrees you want upon the line; which extent, applied to the circle, will include the like number of degrees upon it.

Divide the quadrant CD into 90 equal parts, and from each point of division draw right lines, as ikl , &c. to the line CE , all perpendicular to that line, and parallel to DE , which will divide EC into a line of fines: and although these are seldom put among the dialing lines on a scale, yet they assist in drawing the line of latitudes. For if a ruler be laid upon the point D , and over each division in the line of fines, it will divide the quadrant CB into 90 unequal parts, as Ba , Bb , &c. shown by the right lines $10a$, $20b$, $30c$, &c. drawn along the edge of the ruler. If the right line BC be drawn, subtending this quadrant, and the nearest distances Ba , Bb , Bc , &c. be taken in the compasses from B , and set upon this line in the same manner as directed for the line of chords, it will make a line of latitudes BC , equal in length to the line of chords AB , and of an equal number of divisions, but very unequal as to their lengths.

Draw the right line DGA , subtending the quadrant DA ; and parallel to it, draw the right line rs , touching the quadrant DA at the numeral figure 3. Divide this quadrant into six equal parts, as 1, 2, 3, &c. and through these points of division draw right lines from the centre E to the line rs , which will divide it at the points where the six hours are to be placed, as in the figure. If every sixth part of the quadrant be subdivided into four equal parts, right lines drawn from the centre through these points of division, and continued to the line rs , will divide each hour upon it into quarters.

Fig. 8.
15
A dial on a
card.

In fig. 8. we have the representation of a portable dial, which may be easily drawn on a card, and carried in a pocket-book. The lines $a d$, $a b$, and $b c$ of the gnomon, must be cut quite through the card; and as the end $a b$ of the gnomon is raised occasionally above the plane of the dial, it turns upon the uncut line $c d$ as on a hinge. The dotted line AB must be slit quite thro' the card, and the thread C must be put thro' the slit, and have a knot tied behind, to keep it from being easily drawn out. On the other end of this thread

is a small plummet D , and on the middle of it a small bead for showing the hour of the day.

To rectify this dial, set the thread in the slit right against the day of the month, and stretch the thread from the day of the month over the angular point where the curve lines meet at XII ; then shift the bead to that point on the thread, and the dial will be rectified.

To find the hour of the day, raise the gnomon (no matter how much or how little) and hold the edge of the dial next the gnomon towards the sun, so as the uppermost edge of the shadow of the gnomon may just cover the shadow-line; and the bead then playing freely on the face of the dial, by the weight of the plummet, will show the time of the day among the hour-lines, as it is forenoon or afternoon.

To find the time of sun-rising and setting, move the thread among the hour-lines, until it either covers some one of them, or lies parallel betwixt any two; and then it will cut the time of sun-rising among the forenoon hours, and of sun-setting among the afternoon hours, for that day of the year to which the thread is set in the scale of months.

To find the sun's declination, stretch the thread from the day of the month over the angular point at XII , and it will cut the sun's declination, as it is north or south, for that day, in the proper scale.

To find on what days the sun enters the signs: when the bead, as above rectified, moves along any of the curve-lines which have the signs of the zodiac marked upon them, the sun enters those signs on the days pointed out by the thread in the scale of months.

The construction of this dial is very easy, especially if the reader compares it all along with fig. 1. of Plate CLIX. as he reads the following explanation of that figure.

Draw the occult line AB parallel to the top of the card, and cross it at right angles with the six o'clock line ECD ; then upon C , as a centre, with the radius CA , describe the semicircle AEL , and divide it into 12 equal parts (beginning at A), as Ar , As , &c. and from these points of division draw the hour-lines r , s , t , u , v , E , w , and x , all parallel to the six o'clock line EC . If each part of the semicircle be subdivided into four equal parts, they will give the half-hour-lines and quarters, as in fig. 2. Draw the right line $ASDo$, making the angle SAB equal to the latitude of your place. Upon the centre A describe the arch RST , and set off upon it the arcs SR and ST , each equal to $23\frac{1}{2}$ degrees, for the sun's greatest declination; and divide them into $23\frac{1}{2}$ equal parts, as in fig. 2. Thro' the intersection D of the lines ECD and ADo , draw the right line FDG at right angles to ADo . Lay a ruler to the points A and R , and draw the line ARF through $23\frac{1}{2}$ degrees of south declination in the arc SR ; and then laying the ruler to the points A and T , draw the line ATG through $23\frac{1}{2}$ degrees of north declination in the arc ST : so shall the lines ARF and ATG cut the line FDG in the proper lengths for the scale of months. Upon the centre D , with the radius DF , describe the semicircle FoG ; which divide into six equal parts, Fm , mn , no , &c. and from these points of division draw the right lines mb , ni , pk , and ql , each parallel to oD . Then setting one foot of the compasses in the point F , extend the other to A , and describe

Plate
CLVIII.Plate
CLIX.
fig. 1.

Plate
CLIX.
fig. 1. com-
pared with
fig 8. of
preceding
plate.

describe the arc AZH for the tropic of φ : with the same extent, setting one foot in G , describe the arc AEO for the tropic of $\ominus$. Next setting one foot in the point b , and extending the other to A , describe the arc ACI for the beginnings of the signs ♈ and ♉ ; and with the same extent, setting one foot in the point l , describe the arc AN for the beginnings of the signs ♊ and ♋ . Set one foot in the point i , and having extended the other to A , describe the arc AK for the beginnings of the signs ♌ and ♍ ; and with the same extent, set one foot in k , and describe the arc AM for the beginnings of the signs ♎ and ♏ . Then setting one foot in the point D , and extending the other to A , describe the curve AL for the beginnings of φ and $\ominus$; and the signs will be finished. This done, lay a ruler from the point A over the sun's declination in the arch RST ; and where the ruler cuts the line FDG , make marks: and place the days of the months right against these marks, in the manner shown by fig. 2. Lastly, draw the shadow-line PQ parallel to the occult line AB ; make the gnomon, and set the hours to their respective lines, as in fig. 2. and the dial will be finished.

16
Universal
dials.

Plate
CLIX.
fig. 2.

There are several kinds of dials called *universal*, because they serve for all latitudes. One, of Mr Pardie's construction, was formerly considered as the best. It consists of three principal parts; the first whereof is called the horizontal plane (A), because in practice it must be parallel to the horizon. In this plane is fixed an upright pin, which enters into the edge of the second part BD , called the meridional plane; which is made of two pieces, the lowest whereof (B) is called the *quadrant*, because it contains a quarter of a circle, divided into 90 degrees; and it is only into this part, near B , that the pin enters. The other piece is a semicircle (D) adjusted to the quadrant, and turning in it by a groove, for raising or depressing the diameter (EF) of the semicircle, which diameter is called the *axis of the instrument*. The third piece is a circle (G), divided on both sides into 24 equal parts, which are the hours. This circle is put upon the meridional plane so that the axis (EF) may be perpendicular to the circle, and the point C be the common centre of the circle, semicircle, and quadrant. The straight edge of the semicircle is chamfered on both sides to a sharp edge, which passes through the centre of the circle. On one side of the chamfered part, the first six months of the year are laid down, according to the sun's declination for their respective days, and on the other side the last six months. And against the days on which the sun enters the signs, there are straight lines drawn upon the semicircle, with the characters of the signs marked upon them. There is a black line drawn along the middle of the upright edge of the quadrant, over which hangs a thread (H), with its plummet (I), for levelling the instrument. N. B. From the 23d of September to the 20th of March, the upper surface of the circle must touch both the centre C of the semicircle, and the line of φ and $\ominus$; and from the 20th of March to the 23d of September, the lower surface of the circle must touch that centre and line.

To find the time of the day by this dial. Having set it on a level place in sun-shine, and adjusted it by the levelling screws k and l , until the plumb-line hangs over the back line upon the edge of the quadrant, and
N^o 100.

parallel to the said edge; move the semicircle in the quadrant, until the line of φ and $\ominus$ (where the circle touches) comes to the latitude of your place in the quadrant: then turn the whole meridional plane BD , with its circle G , upon the horizontal plane A , until the edge of the shadow of the circle fall precisely on the day of the month in the semicircle; and then the meridional plane will be due north and south, the axis EF will be parallel to the axis of the world, and will cast a shadow upon the true time of the day among the hours on the circle.

N. B. As, when the instrument is thus rectified, the quadrant and semicircle are in the plane of the meridian, so the circle is then in the plane of the equinoctial. Therefore, as the sun is above the equinoctial in summer (in northern latitudes), and below it in winter; the axis of the semicircle will cast a shadow on the hour of the day, on the upper surface of the circle, from the 20th of March till the 23d of September; and from the 23d of September to the 20th of March, the hour of the day will be determined by the shadow of the semicircle upon the lower surface of the circle. In the former case, the shadow of the circle falls upon the day of the month, on the lower part of the diameter of the semicircle; and in the latter case, on the upper part.

The method of laying down the months and signs upon the semicircle is as follows: Draw the right line ACB equal to the diameter of the semicircle ADB , and cross it in the middle at right angles with the line ECD , equal in length to ADB ; then EC will be the radius of the circle FCG , which is the same as that of the semicircle. Upon E , as a centre, describe the circle FCG , on which set off the arcs Ch and Gi , each equal to $23\frac{1}{2}$ degrees, and divide them accordingly into that number for the sun's declination. Then laying the edge of a ruler over the centre E , and also over the sun's declination for every fifth day of each month (as in the card-dial), mark the points on the diameter AB of the semicircle from a to g , which are cut by the ruler; and there place the days of the months accordingly, answering to the sun's declination. This done, setting one foot of the compasses in C , and extending the other to a or g , describe the semicircle $abcdefg$; which divide into six equal parts, and through the points of division draw right lines parallel to CD , for the beginning of the fines (of which one half are on one side of the semicircle, and the other half on the other), and set the characters of the fines to their proper lines, as in the figure.

An universal dial of a very ingenious construction, has lately been invented by Mr G. Wright of London. The hour-circle or arch E , and latitude arch C , are the portions of two meridian circles; one fixed, and the other moveable. The hour or dial plate SEN at top is fixed to the arch C , and has an index that moves with the hour-circle E ; therefore the construction of this dial is perfectly similar to the construction of the meridians and hour-circle upon a common globe. The peculiar problems to be performed by this instrument are, 1. To find the latitude of any place. 2. The latitude of the place being known, to find the time by the sun and stars. 3. To find the sun or star's azimuth and altitude.

Previous to use, this instrument should be in a well-adjusted

Plate
CLIX.

17
A new one
by Mr G.
Wright.
Plate CLX.
fig. 1.

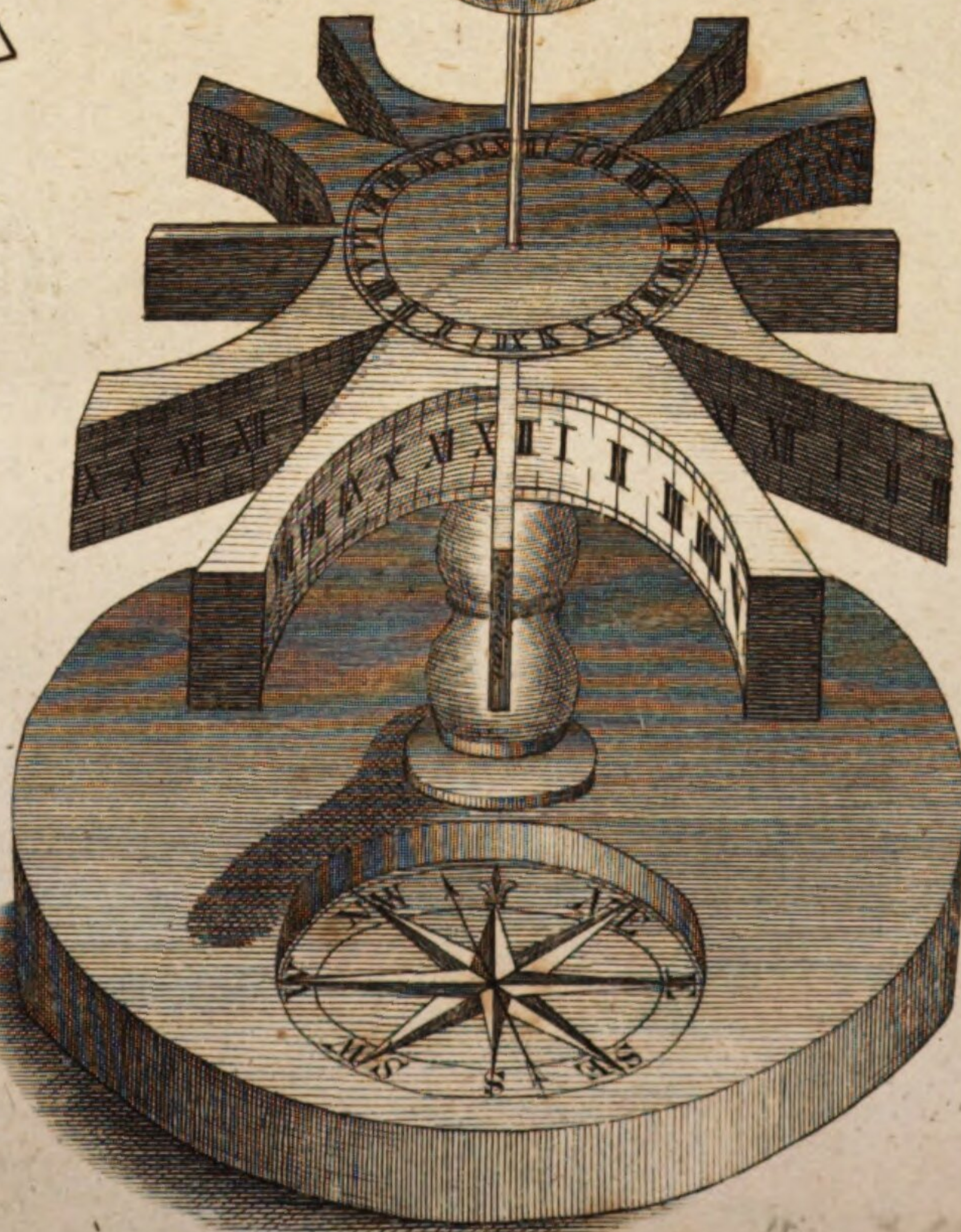
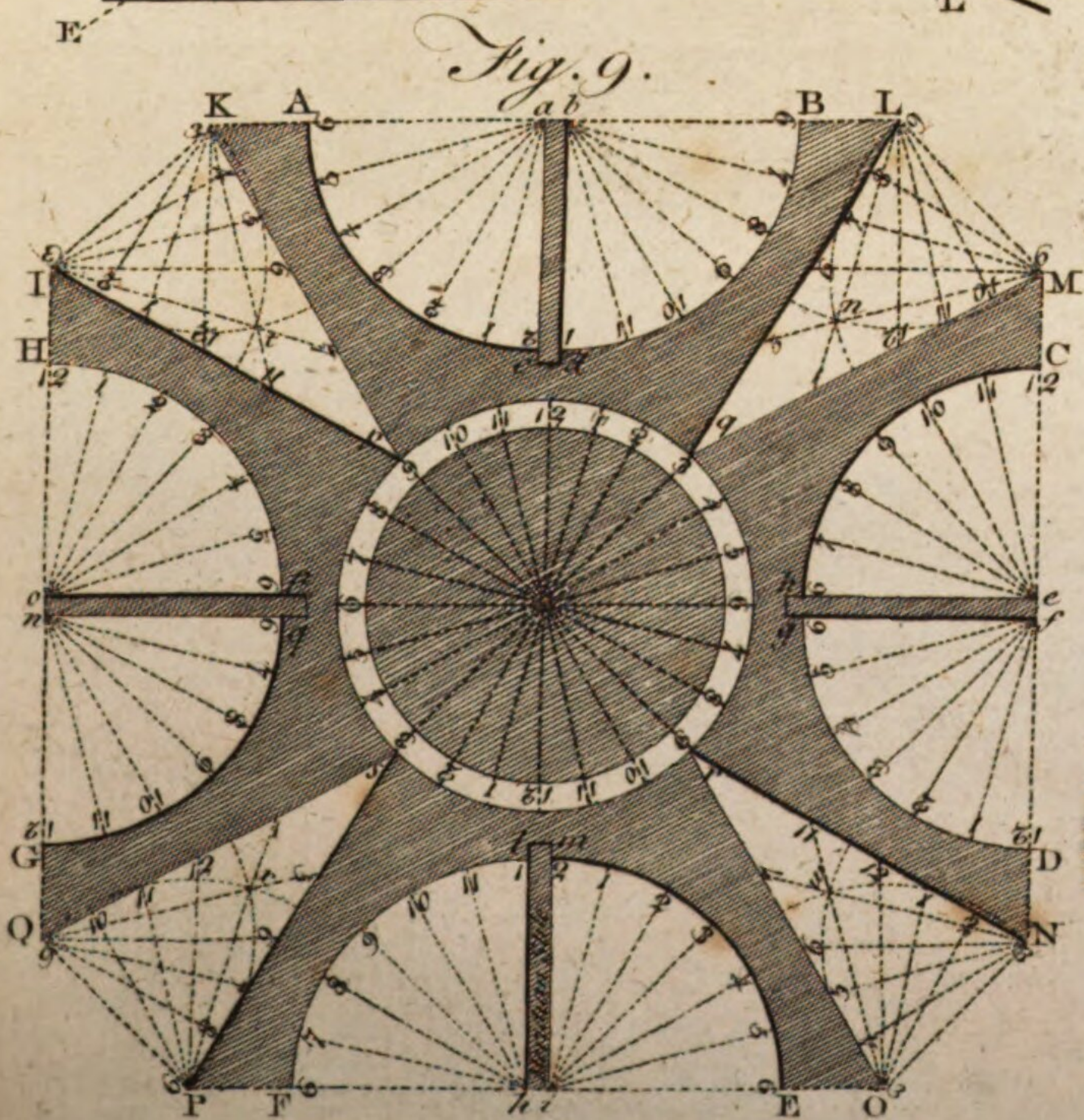
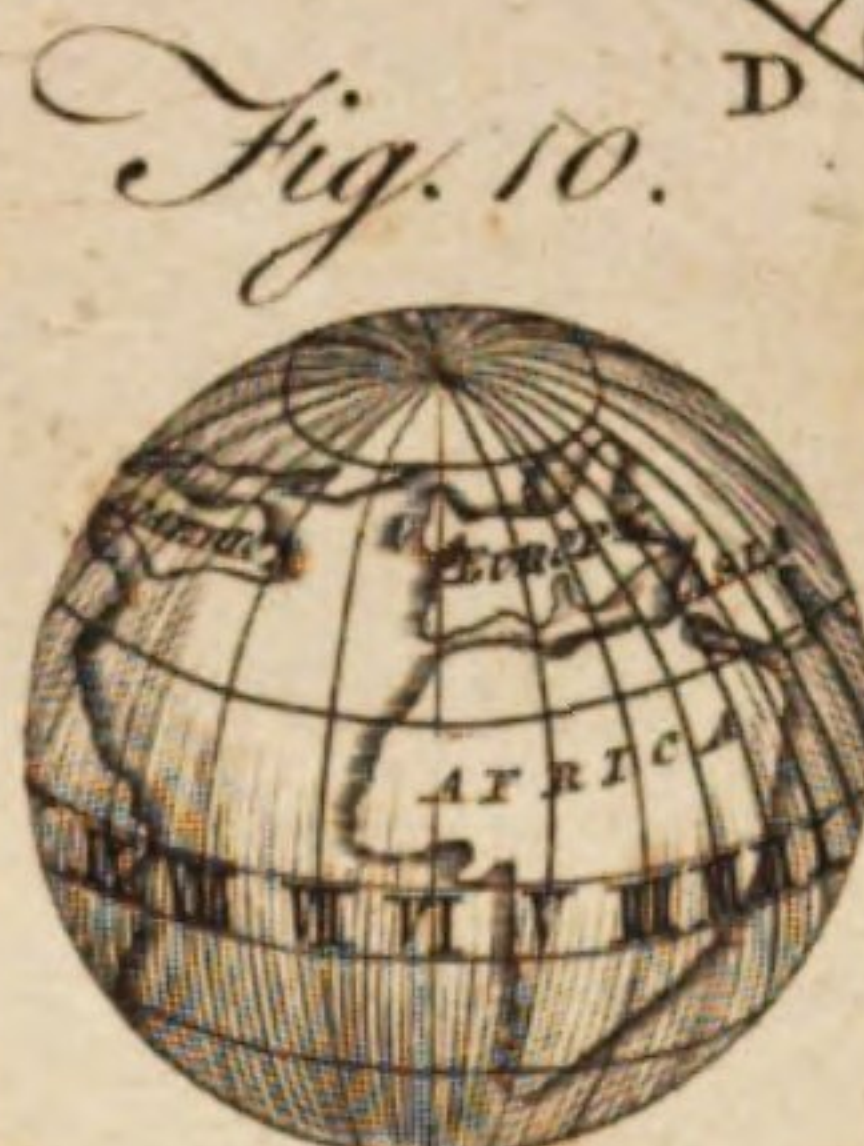
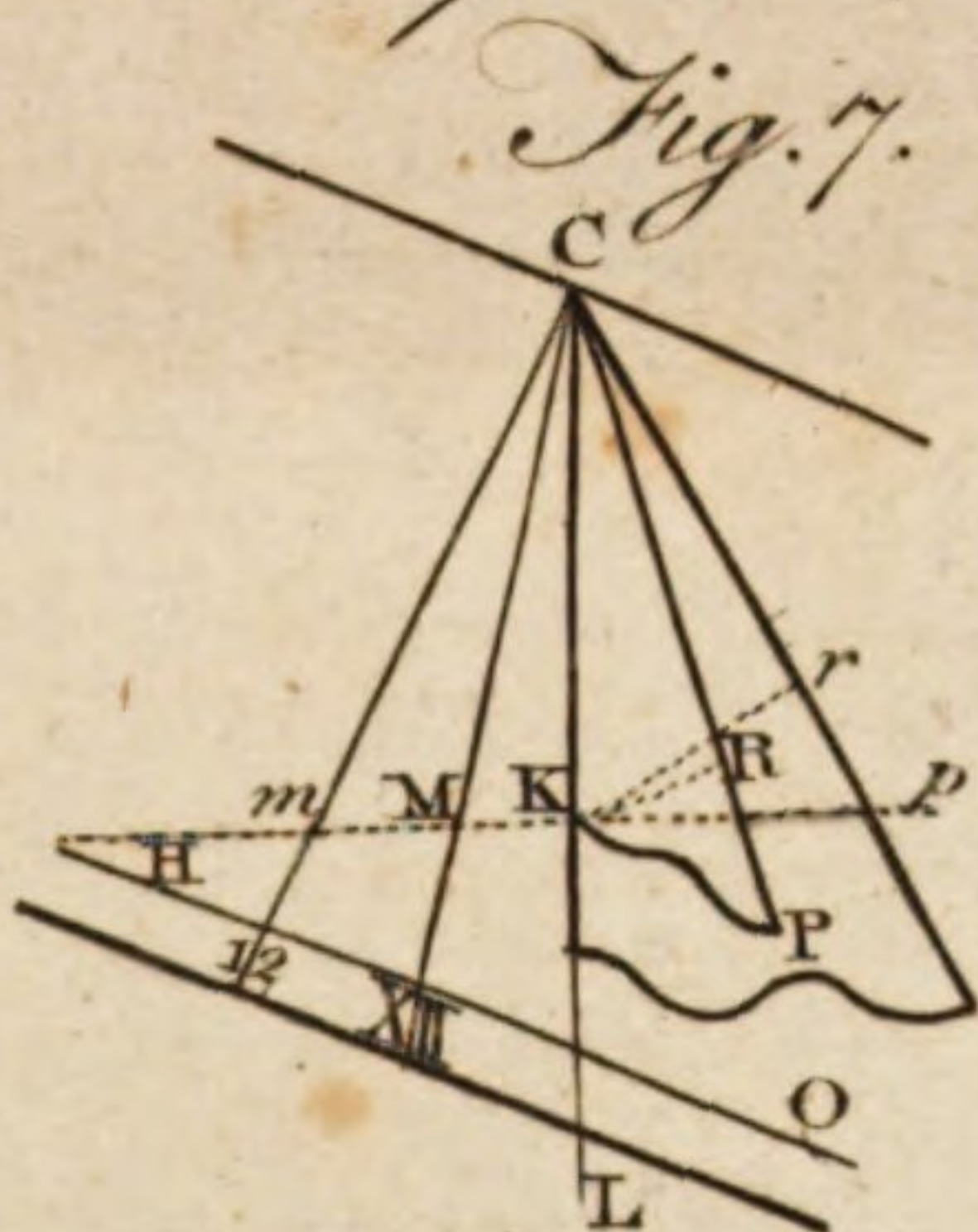
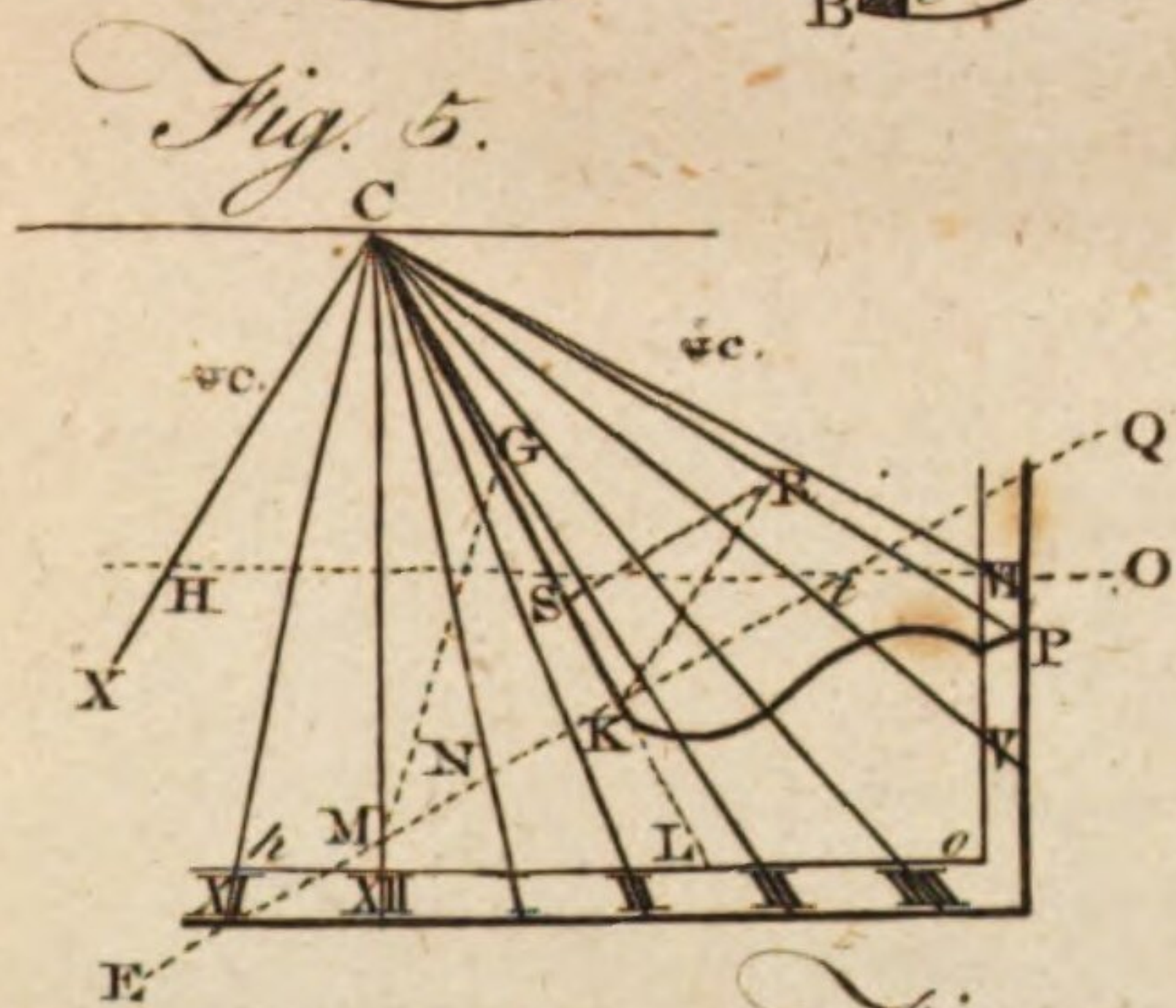
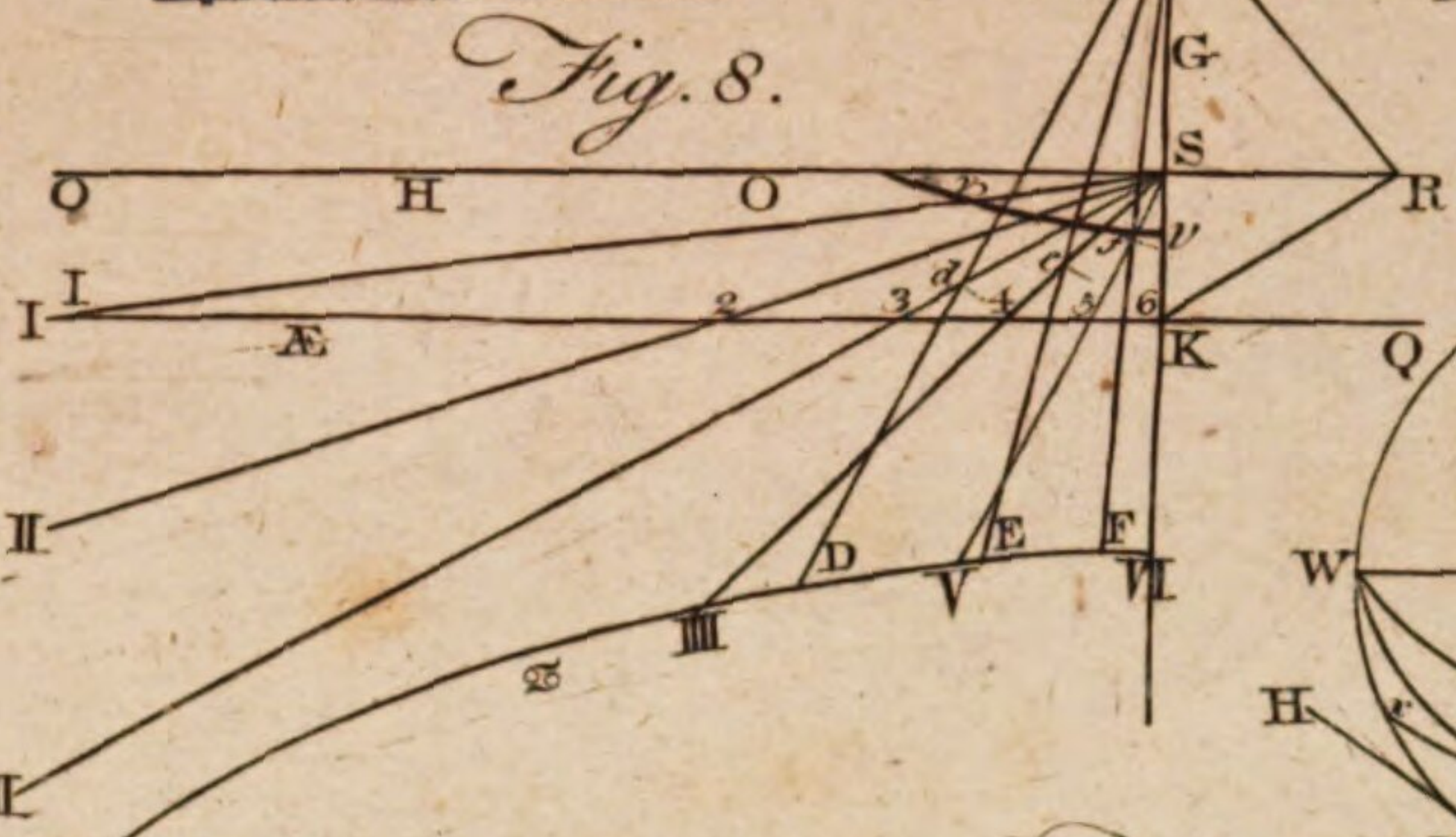
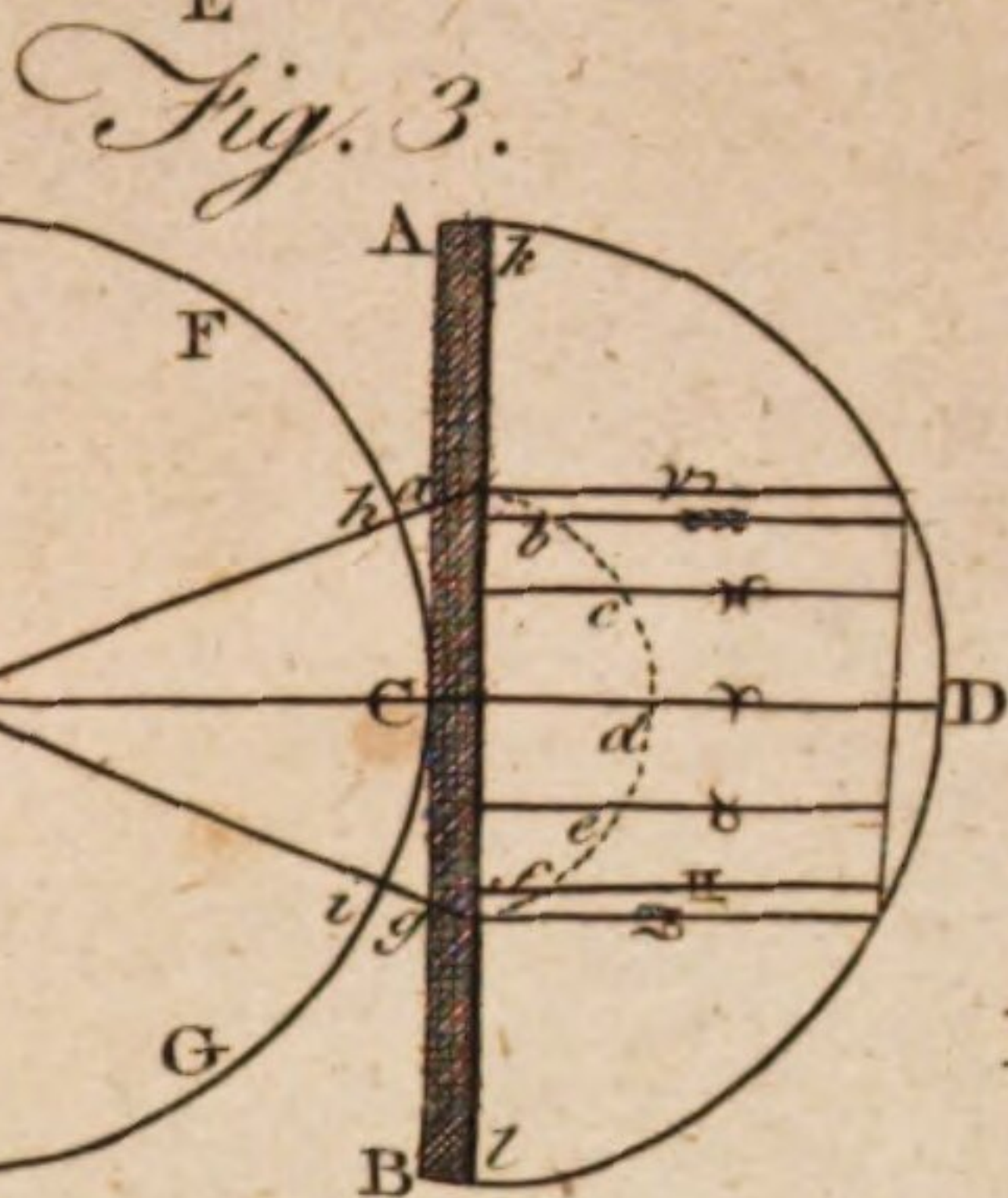
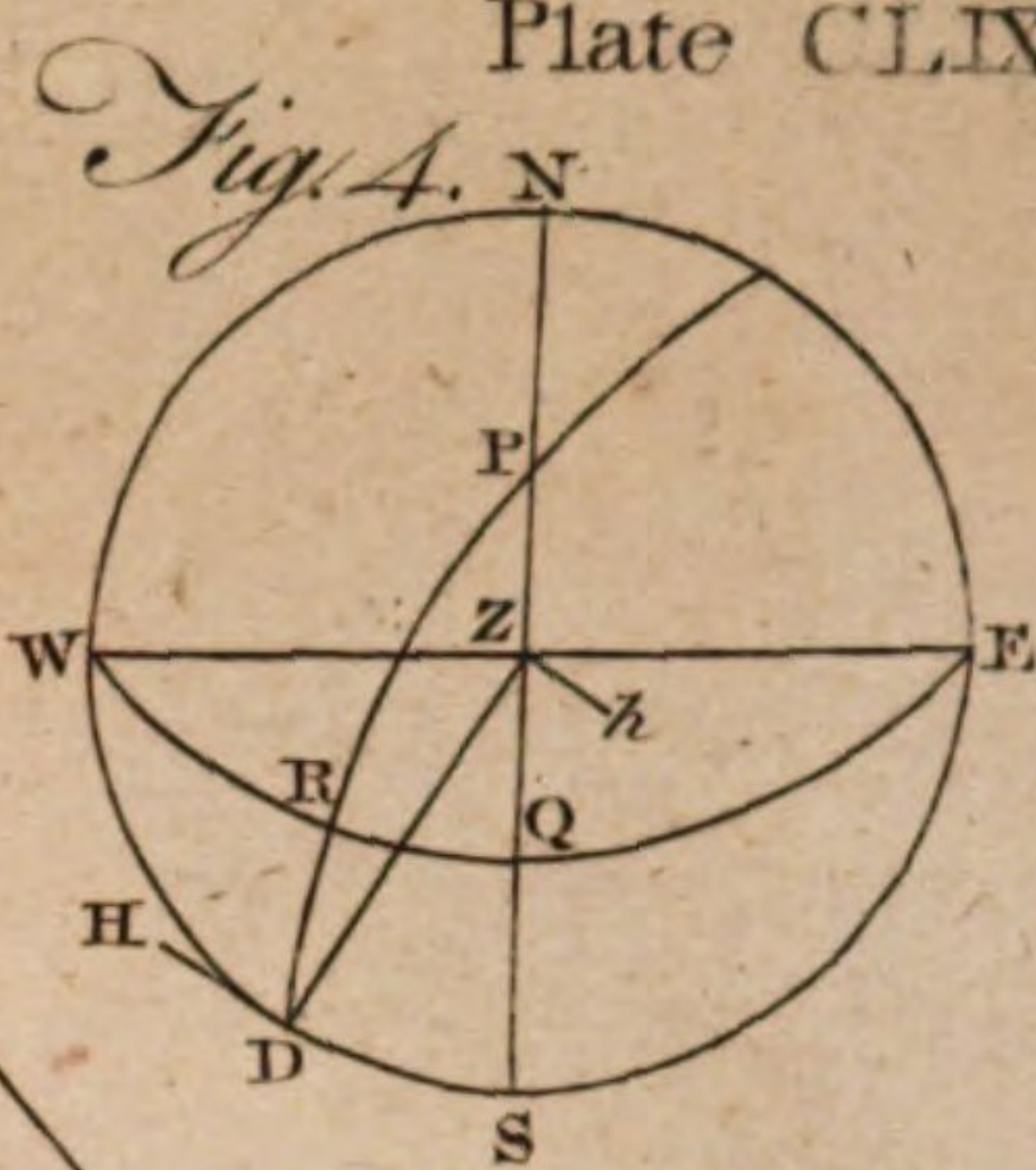
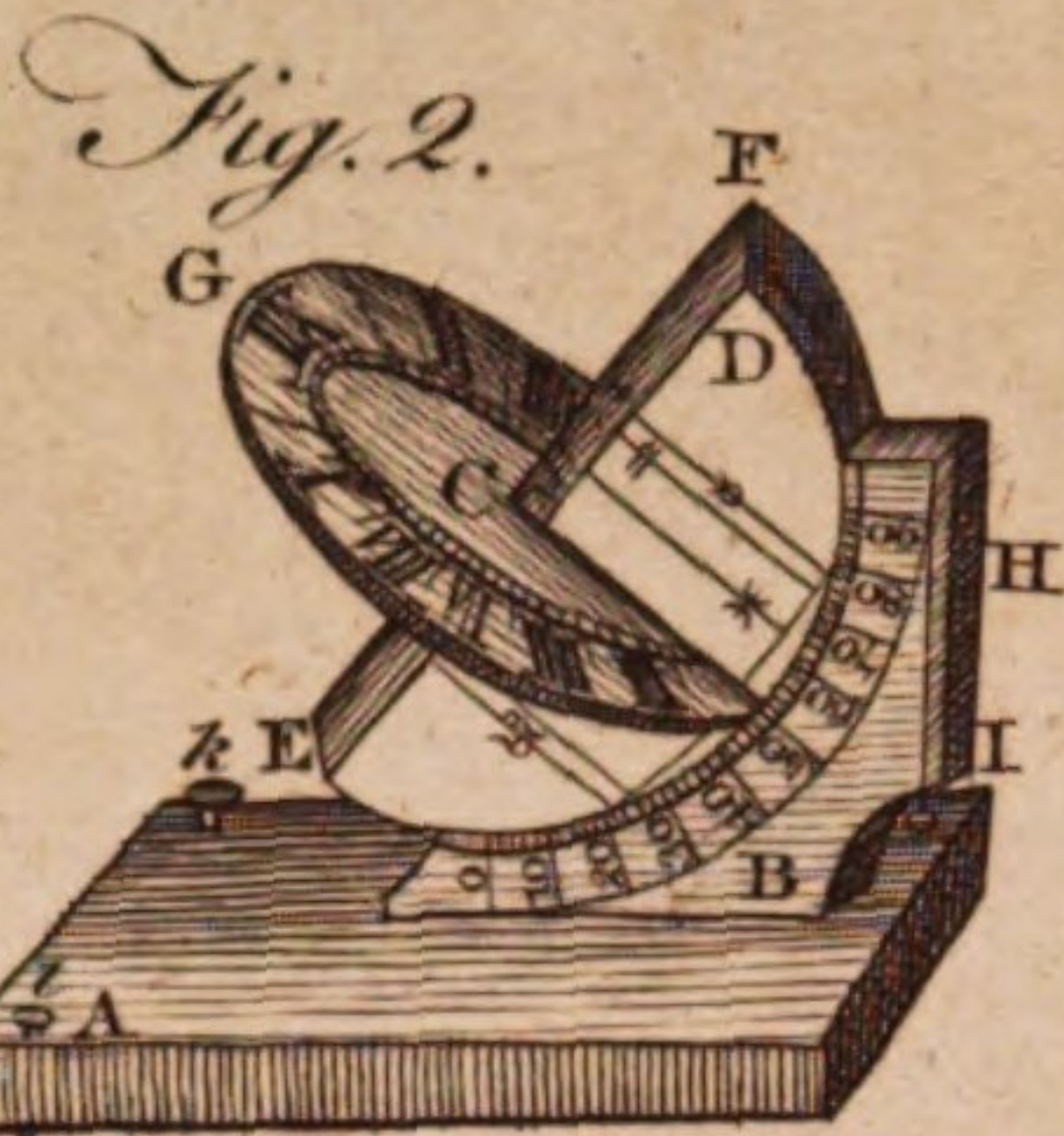
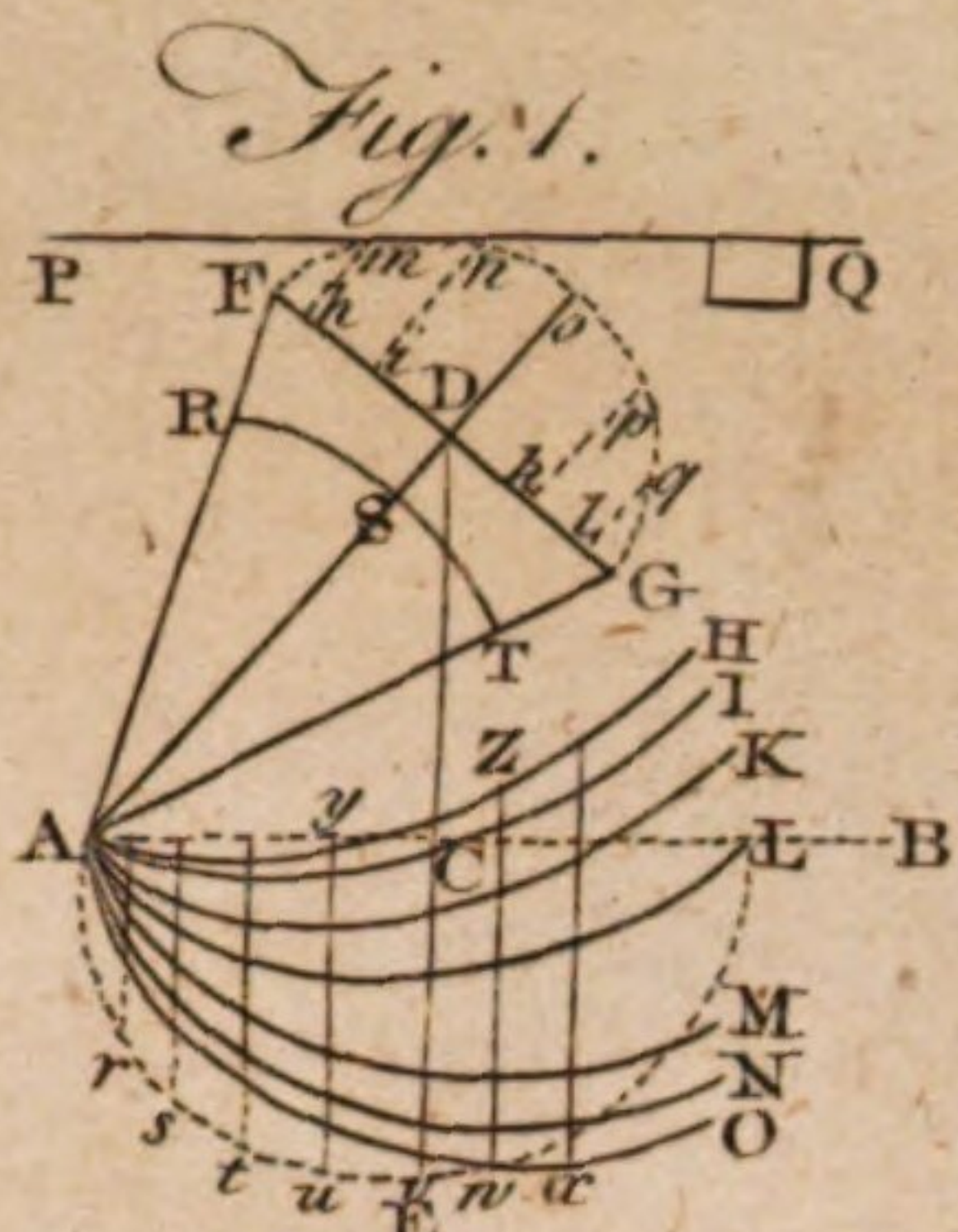


Fig. 1.

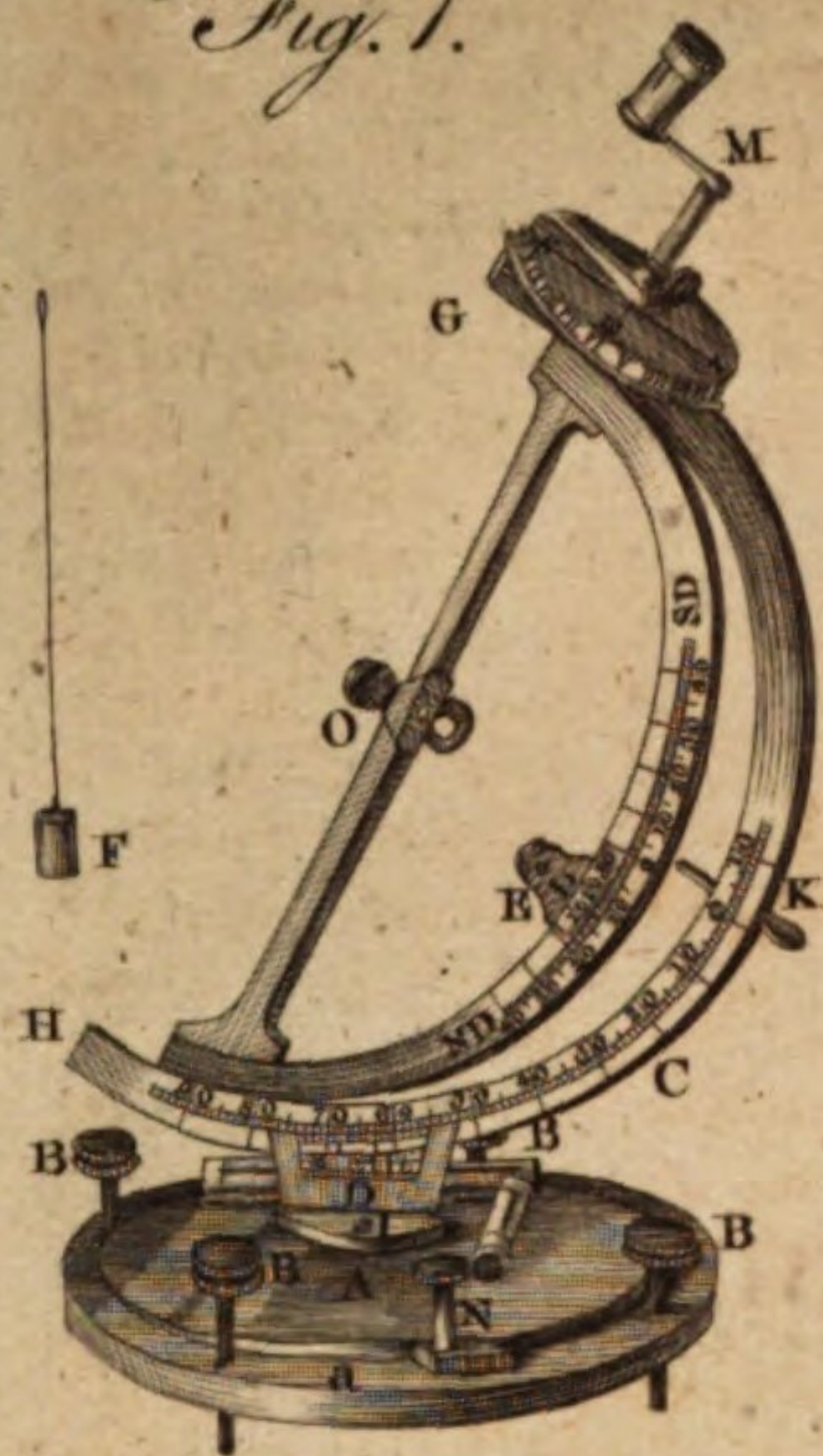


Fig. 2.

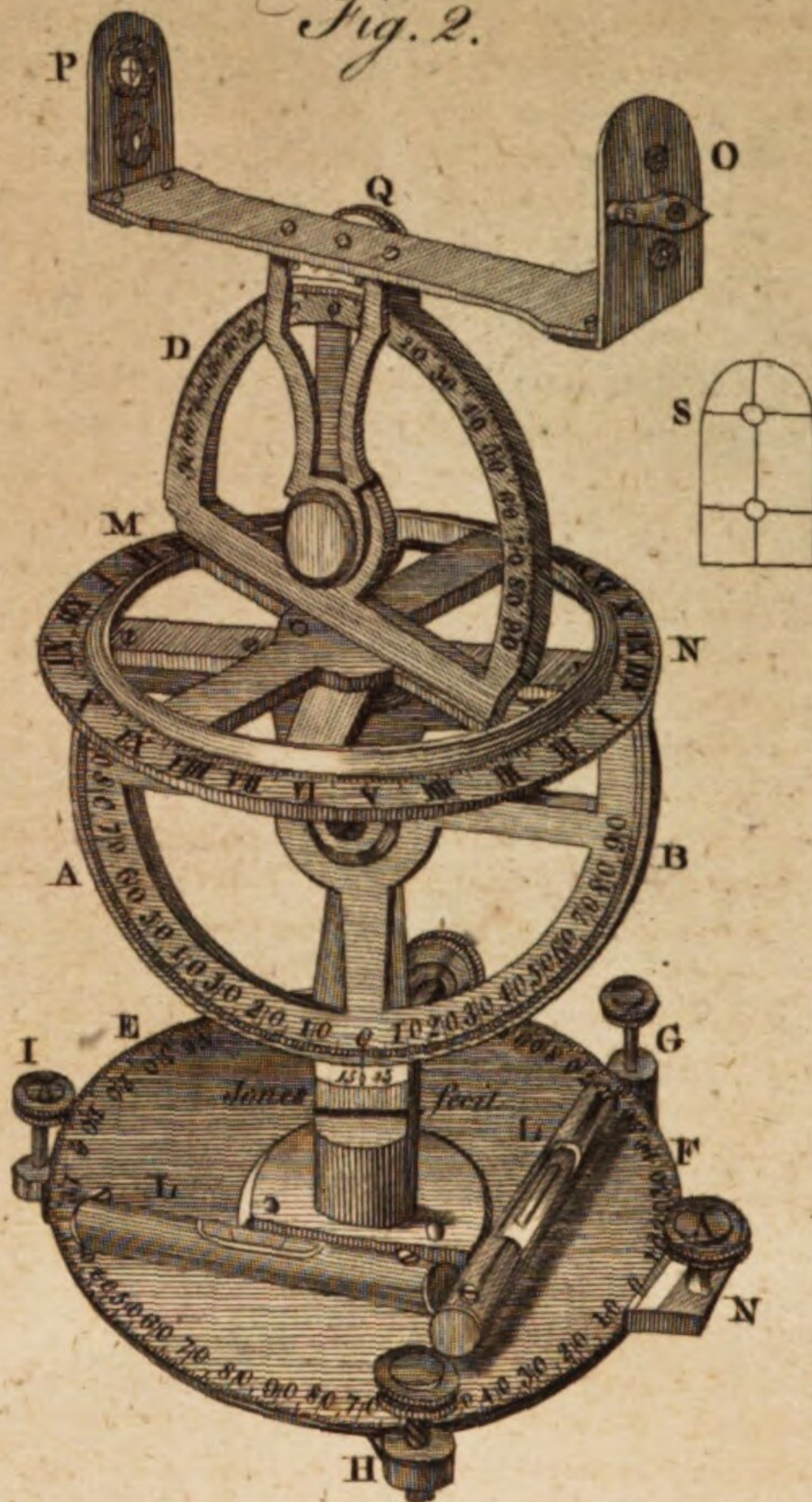


Fig. 3.

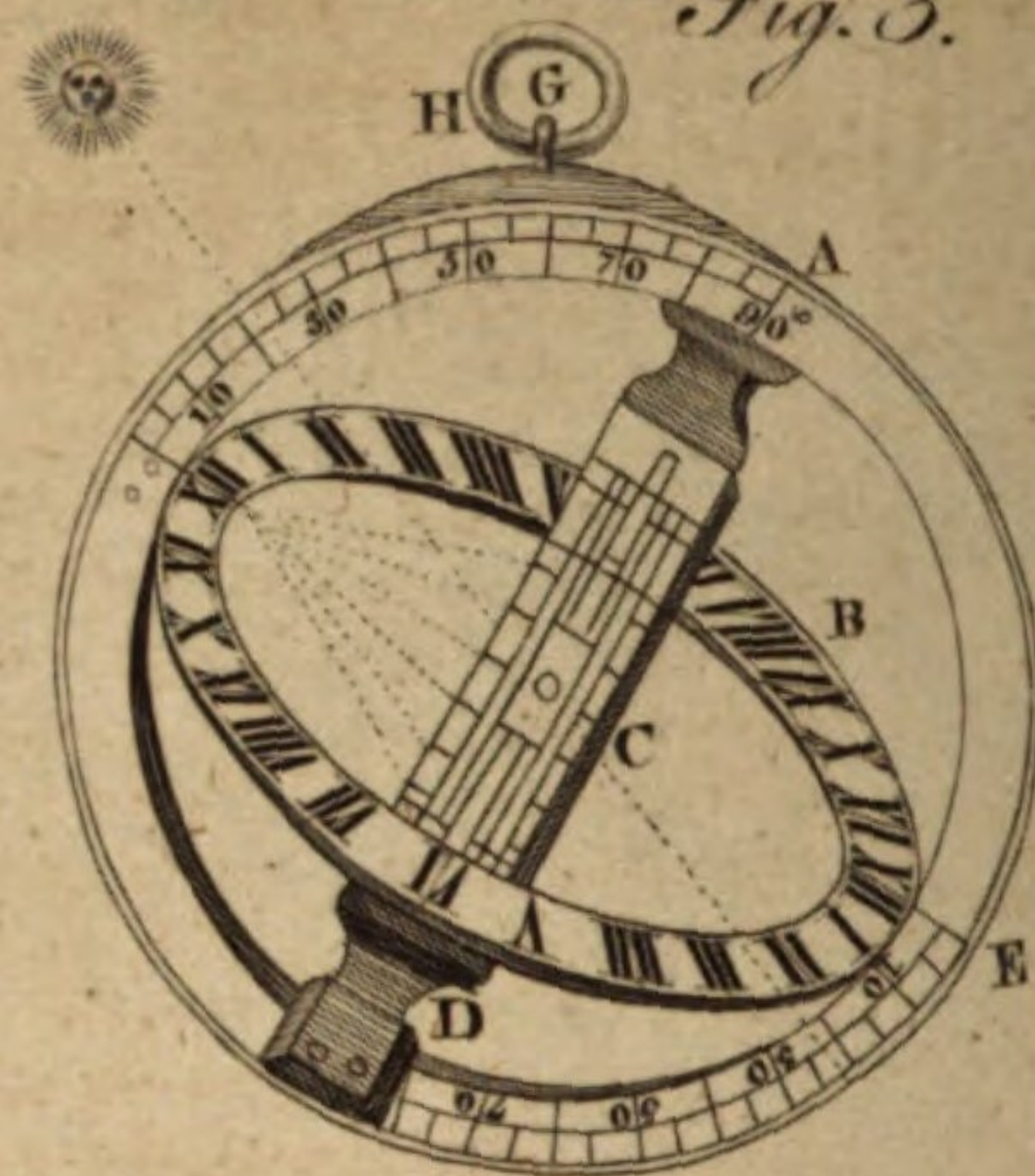


Fig. 4.

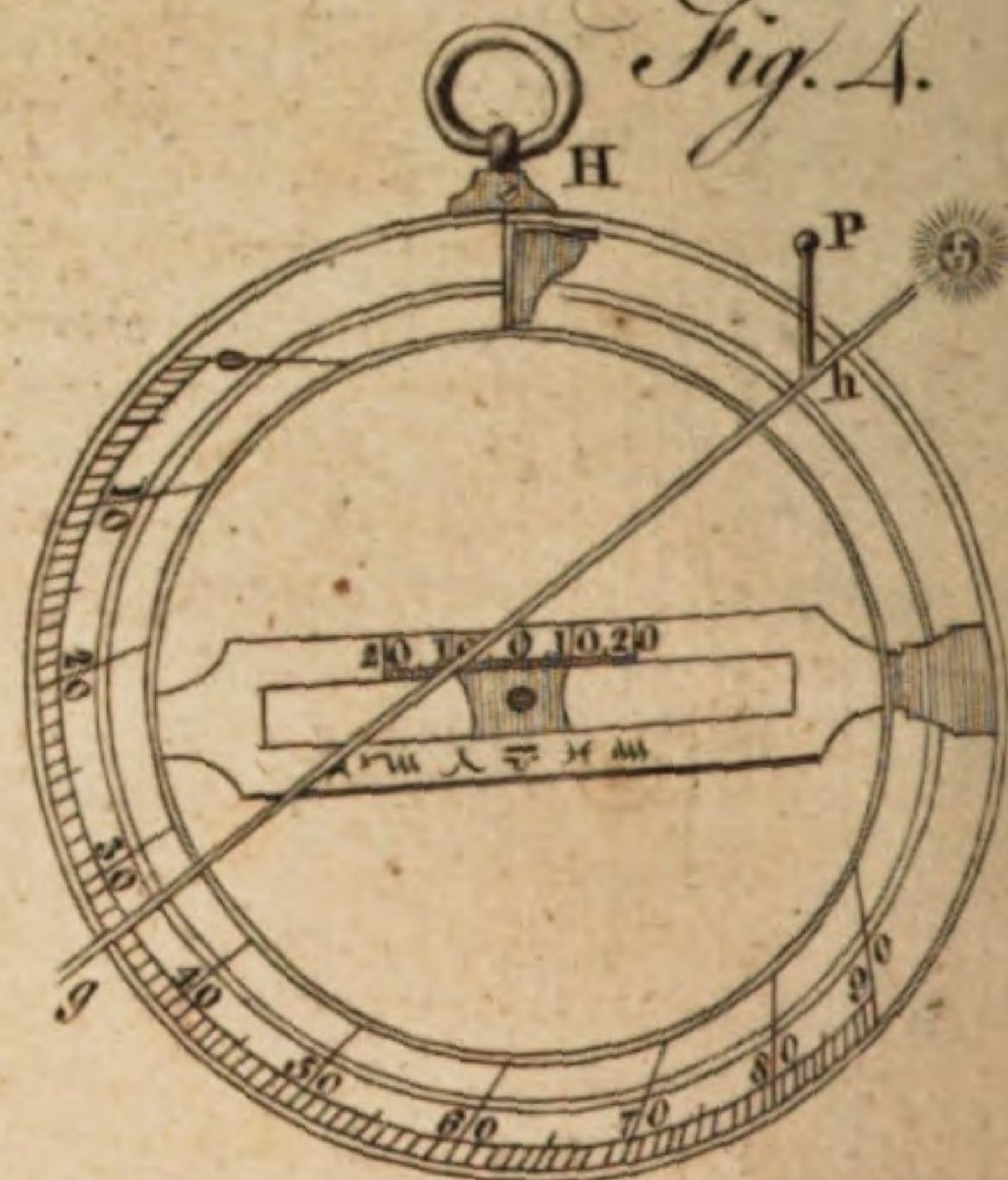


Fig. 10.

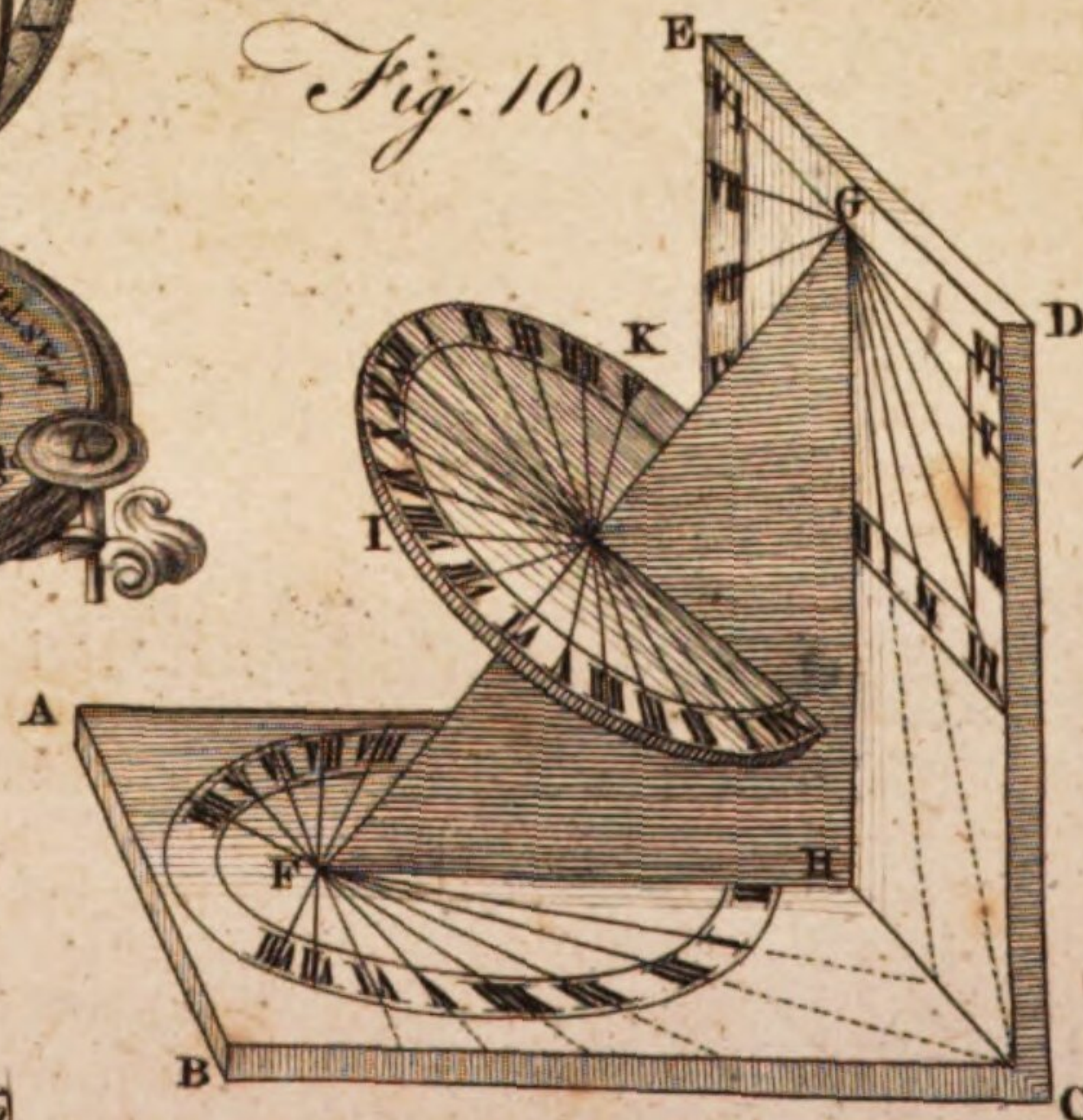


Fig. 9.

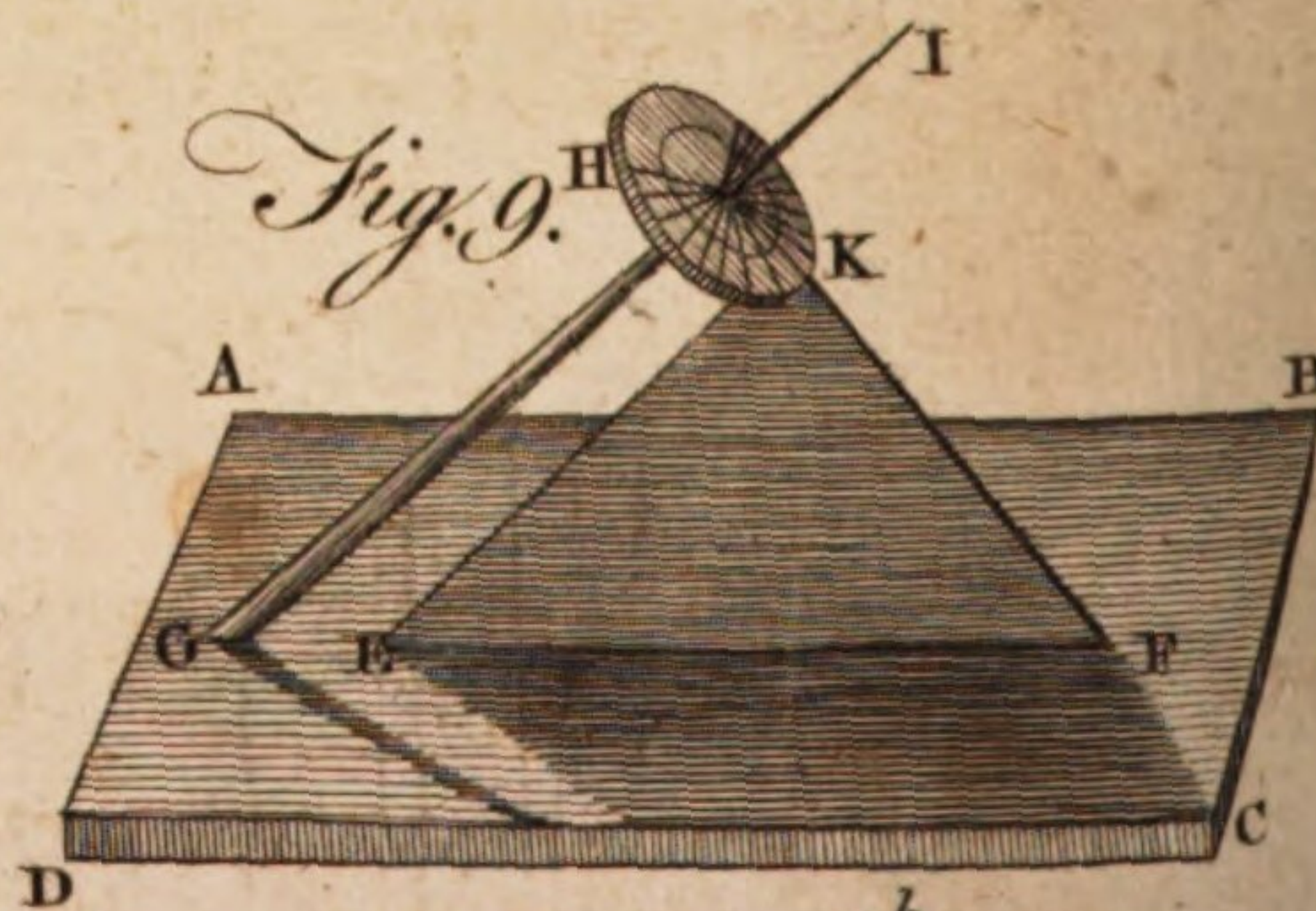


Fig. 8.

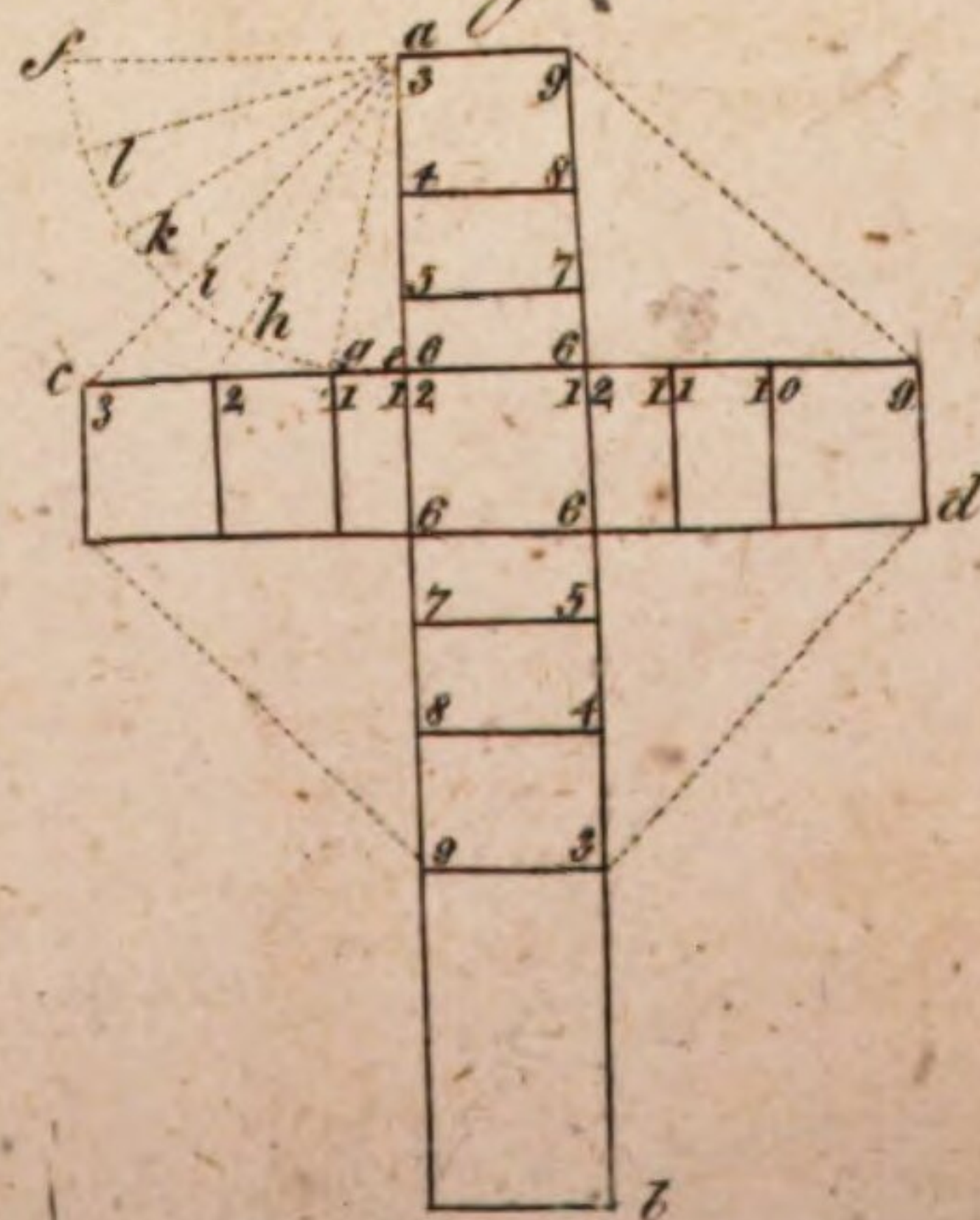


Fig. 7.

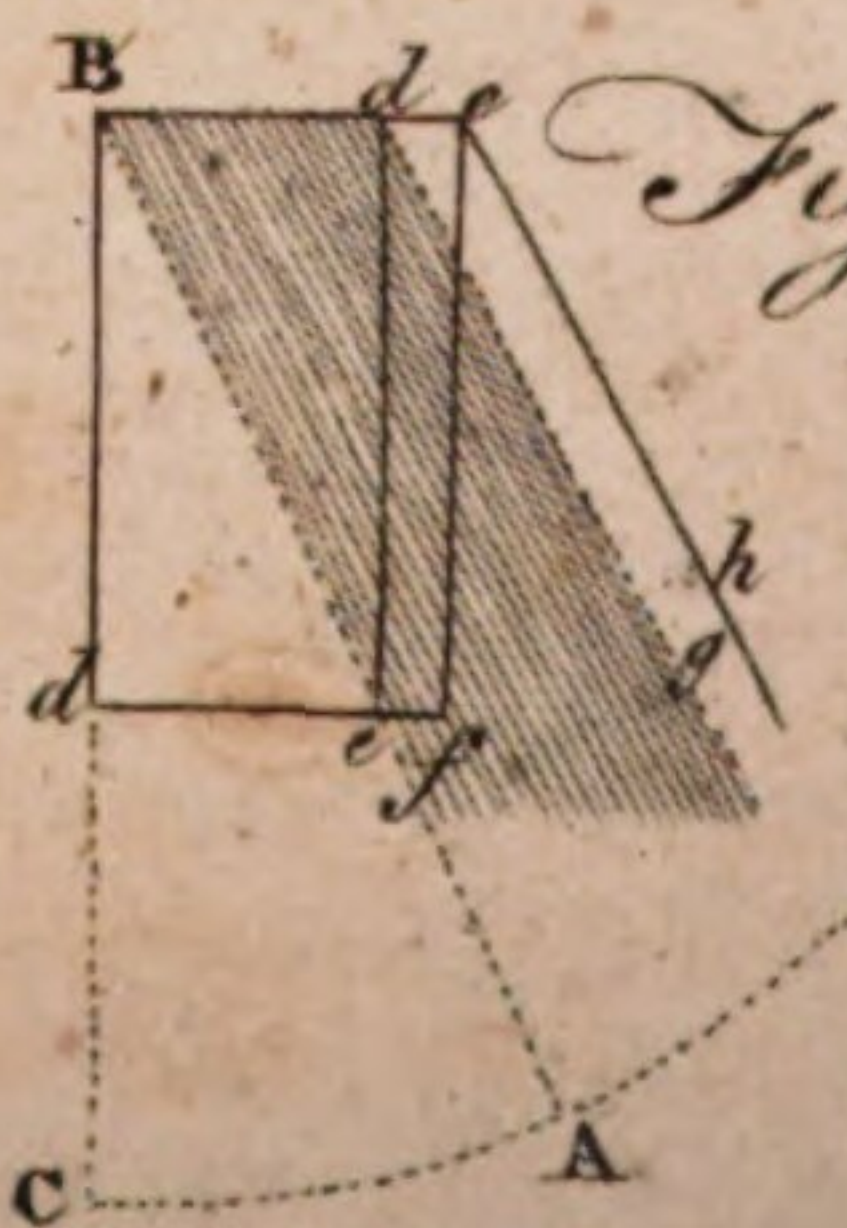
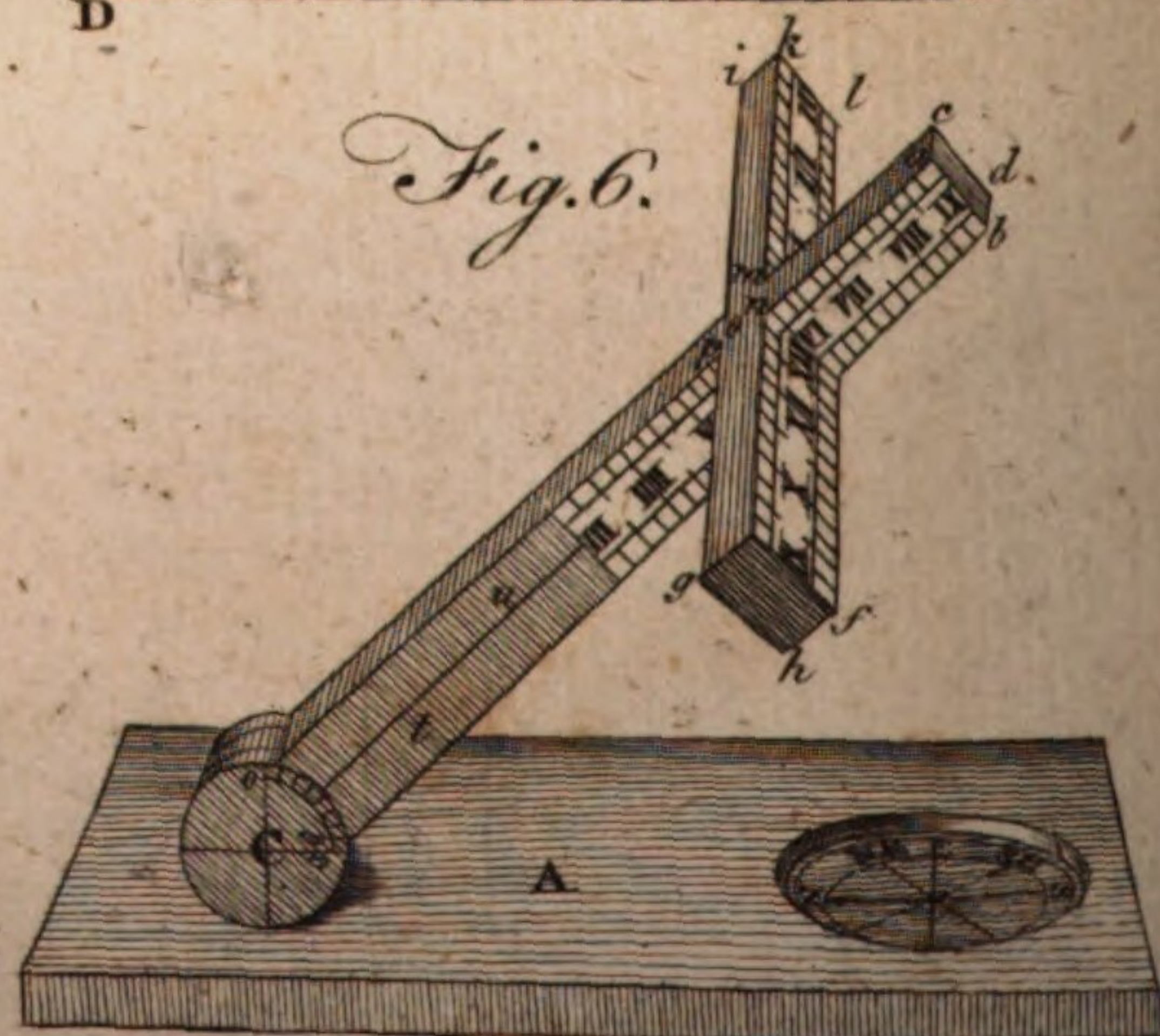


Fig. 6.



A Bell-Penn Wal Sculptor fecit.

Plate
CLX.
fig. 1.

adjusted state: to perform which, you try the levels of the horizontal plates *Aa*, by first turning the screws *BBBB* till the bubbles of air on the glass tubes of the spirit-levels (levels are at right angles to each other) which are central or in the middle, and remain so when you turn the upper plate *A* half round its centre; but if they should not keep so, there are small screws at the end of each level, which admit of being turned one way or the other as may be requisite till they are so. The plates *Aa* being thus made horizontal, set the latitude arch or meridian *C* steadily between the two-grooved sides that hold it (one of which is seen at *D*), by the screw behind. On this side *D* is divided the nonius or vernier, corresponding with the divisions on the latitude arch *C*, and which may be subdivided into 5 minutes of a degree, and even less if required. The latitude arch *C* is to be so placed in *D*, that the pole *M* may be in a vertical position; which is done by making 90° on the arch at bottom coincide with the 0 of the nonius. The arch is then fixed by the tightening screw at the back of *D*. Hang a silken plumb-line on the hook at *G*: which line is to coincide with a mark at the bottom of the latitude arch at *H*, all the while you move the upper plate *A* round its centre. If it does not so, there are four screws to regulate this adjustment, two of which pass through the base *I* into the plate *A*: the other two screws fasten the nonius piece *D* together; which when unscrewed a thread or two, the nonius piece may be easily moved to the right or left of 90° as may be found requisite.

Prob. 1. *To find the latitude of the place.* Fasten the latitude and hour circles together, by placing the pin *K* into the holes; slide the nonius piece *E* on the hour-circle to the sun's declination for the given day: the sun's declination you may know in the ephemeris by White, or other almanacks, for every day in the year. The nonius piece *E* must be set on that portion of the hour-circle marked *N D* or *S D*, according as the sun has north or south declination. About 20 minutes or a quarter of an hour before noon, observe the sun's shadow or spot that passes through the hole at the axis *O*, and gently move the latitude arch *C* down in its groove at *D*, till you observe the spot exactly fall on the cross line on the centre of the nonius piece at *L*; and by the falling of this spot, so long as you observe the sun to increase in altitude, you depress the arch *C*: but at the instant of its stationary appearance the spot will appear to go no lower; then fix the arch by the screw at the back of *D*, and the degrees thereby cut by the nonius on the arch will be the latitude of the place required: if great exactness is wanted, allowance should be made for the refraction of the atmosphere, taken from some nautical or astronomical treatise.

Prob. 2. *The latitude of the place being given, to find the time by the sun or stars.* From an ephemeris as before, you find the sun's declination for the day north or south, and set the nonius piece *E* on the arch accordingly. Set the latitude arch *C*, by the nonius at *D*, to the latitude of the place; and place the magnifying glass at *M*, by which you will very correctly set the index carrying a nonius to the upper XII at *S*. Take out the pin *K*, slacken the horizontal screw *N*, and gently move, either to the right or left as you see necessary, the hour-circle *E*, at the same time with the other hand moving the horizontal plate *A* round its axis

to the right and left, till the latitude-arch *C* falls into the meridian; which you will know by the sun's spot falling exactly in the centre of the nonius piece, or where the lines intersect each other. The time may be now read off exactly to a minute by the nonius on the dial-plate at top, and which will be the time required. The horizontal line drawn on the nonius piece *L*, not seen in the figure, being the parallel of declination, or path that the sun-dial makes, it therefore can fall on the centre of that line at no other time but when the latitude arch *C* is in the meridian, or due north and south. Hence the hour-circle, on moving round with the pole, must give the true time on the dial plate at top. There is a hole to the right, and cross hairs to the left, of the centre axis hole *O*, where the sun's rays pass through; whence the sun's shadow or spot will also appear on the right and left of the centre on the nonius piece *L*, the holes of which are occasionally used as sights to observe through. If the sun's rays are too weak for a shadow, a dark glass to screen the eye is occasionally placed over the hole. The most proper time to find a true meridian is three or four hours before or after noon; and take the difference of the sun's declination from noon at the time you observe. If it be the morning, the difference is that and the preceding day; if afternoon, that and the following day: and the meridian being once found exact, the hour-circle *E* is to be brought into this meridian, a fixed place made for the dial, and an object to observe by it also fixed for it at a great distance. The sights *L O* must at all times be directed against this fixed object, to place the dial truly in the meridian, proper for observing the planets, moon, or bright stars by night.

Prob. 3. *To find the sun's azimuth and altitude.* The latitude-arch *C* being in the meridian, bring the pole *M* into the zenith, by setting the latitude-arch to 90° . Fasten the hour-circle *E* in the meridian by putting in the pin *K*; fix the horizontal plates by the screw *N*; and set the index of the dial-plate to XII, which is the south point: Now take out the pin *K*, and gently move the hour-circle *E*; leaving the latitude arch fixed, till the sun's rays or spot passing through the centre-hole in the axis *O* fall on the centre line of the hour-circle *E*, made for that purpose. The azimuth in time may be then read off on the dial plate at top by the magnifying glass. This time may be converted into degrees, by allowing at the rate of 15 for every hour. By sliding the nonius piece *E*, so that the spot shall fall on the cross line thereon, the altitude may be taken at the same time if it does not exceed 45 degrees. Or the altitude may be taken more universally, by fixing the nonius piece *E* to the 0 on the divisions, and sliding down the latitude-arch in such a manner in the groove at *D*, till the spot falls exactly on the center of the nonius *E*. The degrees and minutes then shown by the nonius at *D*, taken from 90 , will be the altitude required. By looking through the sight holes *L, O*, the altitude of the moon, planets, and stars, may be easily taken. Upon this principle it is somewhat adapted for levelling also; by lowering the nonius piece *E*, equal altitudes of the sun may be had; and by raising it higher, equal depressions.

More completely to answer the purposes of a good theodolite, of levelling, and the performance of problems

Plate
CLX.

blems in practical astronomy, trigonometry, &c. Mr W. Jones of Holborn divides the horizontal plate *D* into 368° , and an opposite nonius on the upper plate *A*, subdividing the degrees into 5 or more minutes. A telescope and spirit-level applies on the latitude arch at *H G* by two screws, making the latitude arch a vertical arch; and the whole is adapted to triangular staffs with parallel plates, similar to those used with the best theodolites.

18
An equi-
noctial dial
more uni-
versal.

Fig. 2.

A dial more universal for the performance of problems than the above, though in some particulars not so convenient and accurate, is made by Mr Jones and other instrument-makers in London. It consists of the common equatorial circles reduced to a portable size, and instead of a telescope carries a plain sight. Its principal parts consist of the sight-piece *O P*, moveable over the declination's semicircle *D*. It has a nonius *Q* to the semicircle. A dark glass to screen the eye applies occasionally over either of the holes at *O*; these holes on the inner side of the piece are intersected by cross lines, as seen in the figure below; and to the sight *P* two pieces are screwed, the lower having a small hole for the sun's rays or shadow, and the upper two cross hairs or wires.

The declination circle or arch *D* is divided into two, 90° each; and is fixed perpendicularly on a circle with a chamfered edge, containing a nonius division that subdivides into single minutes the under equatorial circle *MN*, which in all cases represents the equator, and is divided into twice 12 hours, and each hour into five minutes. At right angles below this equatorial circle is fixed the semicircle of altitude *AB*, divided into two quadrants of 90° each. This arch serves principally to measure angles of altitude and depression; and it moves centrally on an upright pillar fixed in the horizontal circle *EF*. This circle *EF* is divided into four quadrants of 90° each, and against it there is fixed a small nonius plate at *N*. The horizontal circle may be turned round its centre or axis; and two spirit levels *LL* are fixed on it at right angles to one another.

We have not room to detail the great variety of astronomical and trigonometrical problems that may be solved by this general instrument, as described in Jones's *Instrumental Dialing*. One example connected with our present purpose may here suffice, viz. *To find the time when the latitude is given*. Supposing the instrument to be well adjusted by the directions hereafter given: The meridian of the place should be first obtained to place the instrument in, which is settled by a distant mark, or particular cavities to receive the screws at *I G H*, made in the base it stands on. The meridian is best found by equal altitudes of the sun. In order to take these, you set the middle mark of the nonius on the declination arch *D* at *O*, and fix it by the screw behind; then set the horary or hour circle to XII. The circle *EF* being next made horizontal, you direct the sights to the sun, by moving the horizontal circle *EF* and altitude semicircle *AB*: the degrees and minutes marked by the nonius on the latter will be the altitude required. To take equal altitudes, you observe the sun's altitude in the morning two or three hours before noon by the semicircle *AB*: leave the instrument in the same situation perfectly unaltered till the afternoon, when, by moving the horizontal circle *EF*, only find the direction of the sight or the sun's spot to be just

the same, which will be an equal altitude with the morning. The place of the horizontal circle *EF* against the nonius at each time of observation is to be carefully noted; and the middle degree or part between each will be the place where the semicircle *AB*, and sight *O P*, will stand or coincide with, when directed to the south or north, according to the sun's situation north or south at noon at the place of observation. Set the index, or sight-piece *O P*, very accurately to this middle point, by directing the sight to some distant object; or against it, let one be placed up: this object will be the meridian mark, and will always serve at any future time. To find the time, the meridian being thus previously known by equal altitudes of the sun (or star), and determined by the meridian mark made at a distance, or by the cavities in the base to set the screw in: Place the equatorial accordingly, and level the horizontal circle *EF* by the spirit-levels thereon. Set the semicircle *AB* to the latitude of the place, and the index of the sights *O P* to the declination of the sun, found by the ephemeris, as before directed. Turn the semicircle *D* till the sight-holes are accurately directed to the sun, when the nonius on the hour circle *MN* will show the time. It may easily be known when the sun's rays are direct through, by the spot falling on the lower intersectors of the marks across the hole at *O*. See the figure *S* adjoining.

The adjustments of this equatorial dial are to be made from the following trials. 1st, To adjust the levels *LL* on *EF*: Place the *O* of any of the divisions on *EF* to the middle mark or stroke on the nonius at *N*; bring the air-bubbles in the levels in the centres of each case, by turning the several screws at *I G H*: this being exactly done, turn the circle *EF* two 90° or half round: if the bubble of air then remains in the centre, they are right, and properly adjusted for use; but if they are not, you make them so by turning the necessary screws placed for that purpose at the ends of the level-cases by means of a turn-screw, until you bring them to that fixed position, that they will return when the plate *EF* is turned half round. 2^{dly}, To adjust the line of sight *OP*: Set the nonius to *O* on the declination arch *D*, the nonius on the hour-circle to VI, and the nonius on the semicircle *AB* to 90° . Direct to some part of the horizon where there may be a variety of fixed objects. Level the horizontal circle *EF* by the levels *LL*, and observe any object that may appear on the centre of the cross wires. Reverse the semicircle *AB*, viz. so that the opposite 90° of it be applied to the nonius, observing particularly that the other nonii preserve their situation. If then the remote object formerly viewed still continues in the centre of the cross wires, the line of sight *OP* is truly adjusted; but if not, unscrew the two screws of the frame carrying the cross wires, and move the frame till the intersection appears against another or new object, which is half way between the first and that which the wires were against on the reversion. Return the semicircle *AB* to its former position: when, if the intersection of the wires be found to be against the half way object, or that to which they were last divided, the line of sight is adjusted; if not, the operation of observing the interval of the two objects, and applying half way, must be repeated.

It is necessary to observe, that one of the wires should

should

Plate
CLX.Plate
CLX.

should be in the plane of the declination circle, and the other wire at right angles; the frame containing the wires is made to shift for that purpose.

The hole at *P* which forms the sun's spot is also to be adjusted by directing the sight to the sun, that the centre of the shadow of the cross hairs may fall exactly on the upper hole; the lower frame with the hole is then to be moved till the spot falls exactly on the lower sight hole.

Lastly, it is generally necessary to find the correction always to be applied to the observations by the semicircle of altitude *AB*. Set the nonius to 0 on the declination arch *D*, and the nonius to XII on the equator or hour-circle: Turn the sight to any fixed and distinct object, by moving the arch *AB* and circle *EF* only: Note the degree and minute of the angle of altitude or depression: Reverse the declination semicircle by placing the nonius on the hour-circle to the opposite XII: Direct the sight to the same object again as before. If the altitude or depression now given be the same as was observed in the former position, no correction is wanted; but if not the same, half the difference of the two angles is the correction to be added to all observations or rectifications made with that quadrant by which the least angle was taken, or to be subtracted from all observations made with the other quadrant. These several adjustments are absolutely necessary previous to the use of the instrument; and when once well done, will keep so, with care, a considerable time.

19
Universal
Ring-dial.
Fig. 3. 4. 5.

The *Universal or Astronomical Equinoctial Ring-Dial*, is an instrument of an old construction, that also serves to find the hour of the day in any latitude of the earth (see fig. 3.). It consists of two flat rings or circles, usually from 4 to 12 inches diameter, and of a moderate thickness; the outward ring *AE* representing the meridian of the place it is used at, contains two divisions of 90° each opposite to one another, serving to let the sliding piece *H*, and ring *G* (by which the dial is usually suspended), be placed on one side from the equator to the north pole, and on the other side to the south, according to the latitude of the place. The inner ring *B* represents the equator, and turns diametrically within the outer by means of two pivots inserted in each end of the ring at the hours XII.

Across the two circles is screwed to the meridian a thin pierced plate or bridge, with a cursor *C*, that slides along the middle of the bridge: this cursor has a small hole for the sun to shine through. The middle of this bridge is conceived as the axis of the world, and its extremities as the poles: on the one side are delineated the 12 signs of the zodiac, and sometimes opposite the degrees of the sun's declination; and on the other side the days of the month throughout the year. On the other side of the outer ring *A* are the divisions of 90°, or a quadrant of altitude: It serves, by the placing of a common pin *P* in the hole *b* (see fig. 4.), to take the sun's altitude or height, and from which the latitude of the place may easily be found.

20
Its use.

Use of the dial. Place the line *a* in the middle of the sliding piece *H* over the degree of latitude of the place. Suppose, for example, 51½ for London; put the line which crosses the hole of the cursor *C* to the day of the month or the degree of the sign. Open

the instrument till the two rings be at right angles to each other, and suspend it by the ring *G*; that the axis of the dial represented by the middle of the bridge be parallel to the axis of the earth, viz. the north pole to the north, and *vice versa*. Then turn the flat side of the bridge towards the sun, so that his rays passing through the small hole in the cursor may fall exactly in a line drawn through the middle of the concave surface of the inner ring or hour-circle, the bright spot by which shows the hour of the day in the said concave surface of the dial. *Note*, The hour XII cannot be shown by this dial, because the outer-ring being then in the plane of the meridian, excludes the sun's rays from the inner; nor can this dial show the hour when the sun is in the equinoctial, because his rays then falling parallel to the plane of the inner circle or equinoctial, are excluded by it.

To take the altitude of the sun by this dial, and with the declination thereby to find the latitude of the place. Place a common pin *P* in the hole *b*, projecting in the side of the meridian where the quadrant of altitude is; then bring the centre mark of the sliding piece *H* to the 0 or middle of the two divisions of latitude on the other side, and turn the pin towards the sun till it cuts a shadow over the degree of the quadrant of altitude; then what degree the shadow cuts is the altitude. Thus, in fig. 4. the shadow *bg* appears to cut 35°, the altitude of the sun.

The sun's *declination* is found by moving the cursor in the sliding piece till the mark across the hole stands just against the day of the month; then, by turning to the other side of the bridge, the mark will stand against the sun's declination.

In order to find the *latitude* of the place, observe that the latitude and declination be the same, viz. both north or south; subtract the declination from the meridian or greatest daily altitude of the sun, and the remainder is the complement of the latitude; which subtracted from 90°, leaves the latitude. Example:

	Deg.	min.
The meridian altitude may be	57	48
The sun's declination for the day	19	18
Complement of latitude	38	30
	90	0
The latitude	51	30

But if the latitude and declination be contrary, add them together, and the sum is the complement of the latitude. This dial is sometimes mounted on a stand, with a compass, two spirit levels, and adjusting screws, &c. &c. (see fig. 5.), by which it is rendered more useful and convenient for finding the sun's azimuth, altitudes, variation of the needle, declinations of planes, &c. &c.

An *Universal Dial on a plain cross*, is described by Mr Fergulson. It is moveable on a joint *C*, for elevating it to any given latitude on the quadrant *Co 90*, as it stands upon the horizontal board *A*. The arms of the cross stand at right angles to the middle part; and the top of it, from *a* to *n*, is of equal length with either of the arms *ne* or *mk*. See fig. 6.

This dial is rectified by setting the middle line *tu* to the

5 H 2

the

21
Universal
Cross-Dial.
Fig. 6. 7. 8.

the latitude of the place on the quadrant, the board *A* level, and the point *N* northward by the needle; thus, the plane of the cross will be parallel to the plane of the equator. Then, from III o'clock in the morning till VI, the upper edge *k l* of the arm *i o* will cast a shadow on the time of the day on the side of the arm *c m*; from VI till IX, the lower edge *i* of the arm *i o* will cast a shadow on the hours on the side *o q*. From IX in the morning to XII at noon, the edge *a b* of the top part *a n* will cast a shadow on the hours on the arm *n e f*; from XII to III in the afternoon, the edge *c d* of the top part will cast a shadow on the hours on the arm *k l m*; from III to VI in the evening, the edge *g h* will cast a shadow on the hours on the part *p q*; and from VI till IX, the shadow of the edge *e f* will show the time on the top part *a n*. The breadth of each part, *a b*, *e f*, &c. must be so great, as never to let the shadow fall quite without the part or arm on which the hours are marked, when the sun is at his greatest declination from the equator.

To determine the breadth of the sides of the arms which contain the hours, so as to be in just proportion to their length; make an angle *ABC* (fig. 7.) of $23\frac{1}{2}$ degrees, which is equal to the sun's greatest declination; and suppose the length of each arm, from the side of the long middle part, and also the length of the top part above the arms, to be equal to *B d*. Then, as the edges of the shadow, from each of the arms, will be parallel to *B e*, making an angle of $23\frac{1}{2}$ degrees with the side *B d* of the arm, when the sun's declination is $23\frac{1}{2}^\circ$, it is plain, that if the length of the arm be *B d*, the least breadth that it can have, to keep the edge *B e* of the shadow *B e g d* from going off the side of the arm *d e* before it comes to the end of it *e d*, must be equal to *e d* or *d B*. But in order to keep the shadow within the quarter divisions of the hours, when it comes near the end of the arm, the breadth of it should be still greater, so as to be almost doubled, on account of the distance between the tips of the arms.

The hours may be placed on the arms, by laying down the cross *a b c d* (fig. 8.) on a sheet of paper; and with a black-lead pencil held close to it, drawing its shape and size on the paper. Then take the length *a e* in the compasses, and with one foot in the corner *a*, describe with the other the quadrant *e f*. Divide this arc into six equal parts, and through the points of division draw light lines *a g*, *a h*, &c. continuing three of them to the arm *c e*, which are all that can fall upon it; and they will meet the arm in those points through which the lines that divide the hours from each other, as in fig. 6. are to be drawn right across it. Divide each arm, for the three hours contained in it, in the same manner; and set the hours to their proper places, on the sides of the arms, as they are marked in fig. 33. Each of the hour spaces should be divided into four equal parts, for the half hours and quarters, in the quadrant *e f*; and right lines should be drawn thro' these division-marks in the quadrant, to the arms of the cross, in order to determine the places thereon where the subdivisions of the hours must be marked.

This is a very simple kind of universal dial; it is easily made, and has a pretty, uncommon appearance in a garden.

Fig. 9. is called an *Universal Mechanical Dial*, as Plate CLX. by its equinoctial circle an easy method is had of describing a dial on any kind of plane. For example: Suppose a dial is required on an horizontal plane. If the plane be immoveable, as *ABCD*, find a meridian line as *GF*; or if moveable, assume the meridian at pleasure: then by means of the triangle *EKF*, whose base is applied on the meridian line, raise the equinoctial dial *H* till the index *GI* becomes parallel to the axis of the earth, (which is so, if the angle *KEF* be equal to the elevation of the pole), and the 12 o'clock line on the dial hang over the meridian line of the plane or the base of the triangle. If then, in the night-time or a darkened place, a lighted candle be successively applied to the axis *GI*, so as the shadow of the index or stile *GI* fall upon one hour-line after another, the same shadow will mark out the several hour-lines on the plane *ABCD*. Noting the points therefore on the shadow, draw lines through them to *G*; then an index being fixed on *G*, according to the angle *IGF*, its shadow will point out the several hours by the light of the sun. If a dial were required on a vertical plane, having raised the equinoctial circle as directed, push forward the index *GI* till the tip thereof *I* touch the plane. If the plane be inclined to the horizon, the elevation of the pole should be found on the same; and the angle of the triangle *KEF* should be made equal thereto.

Mr Ferguson describes a method of making three Dials on three planes, so that they may all show the time of the day by one gnomon. On the flat board *ABC* describe an horizontal dial, with its gnomon *FGH*, the edge of the shadow of which shows the time of the day. To this horizontal board join the upright board *EDC*, touching the edge *GH* of the gnomon; then making the top of the gnomon at *G* the centre of the vertical south dial, describe it on the board *EDC*. Besides, on a circular plate *IK* describe an equinoctial dial, and, by a slit *c d* in the XII o'clock line from the edge to the centre, put it on the gnomon *EG* as far as the slit will admit. The same gnomon will show the same hour on each of these dials.

An *Universal Dial*, showing the hours of the day by a terrestrial globe, and by the shadows of several gnomons, at the same time: together with all the places of the earth which are then enlightened by the sun; and those to which the sun is then rising, or on the meridian, or setting. This dial is made of a thick square piece of wood, or hollow metal. The sides are cut into semicircular hollows, in which the hours are placed; the stile of each hollow coming out from the bottom thereof, as far as the ends of the hollows project. The corners are cut out into angles, in the insides of which the hours are also marked; and the edge of the end of each side of the angle serves as a stile for casting a shadow on the hours marked on the other side.

In the middle of the uppermost side, or plane, there is an equinoctial dial; in the centre whereof an upright wire is fixed, for casting a shadow on the hours of that dial, and supporting a small terrestrial globe on its top.

The whole dial stands on a pillar, in the middle of a round horizontal board, in which there is a compass and magnetic needle, for placing the meridian stile toward

Easy method of drawing a dial by the universal mechanical dial.

Fig. 9.

23
Dials on three planes by one gnomon.

Fig. 10.

Plate
CLIX.
Fig. 16.

Plate
CLIX.

ward the south. The pillar has a joint with a quadrant upon it, divided into 90 degrees (supposed to be hid from sight under the dial in the figure) for setting it to the latitude of any given place.

The equator of the globe is divided into 24 equal parts, and the hours are laid down upon it at these parts. The time of the day may be known by these hours, when the sun shines upon the globe.

To rectify and use this dial, set it on a level table, or sole of a window, where the sun shines, placing the meridian stile due south, by means of the needle; which will be, when the needle points as far from the north fleur-de-lis towards the west, as it declines westward, at your place. Then bend the pillar in the joint, till the black line on the pillar comes to the latitude of your place in the quadrant.

The machine being thus rectified, the plane of its dial part will be parallel to the equator, the wire or axis that supports the globe will be parallel to the earth's axis, and the north pole of the globe will point toward the north pole of the heavens.

The same hour will then be shown in several of the hollows, by the ends of the shadows of their respective stiles: the axis of the globe will cast a shadow on the same hour of the day, in the equinoctial dial, in the center of which it is placed, from the 20th of March to the 23d of September; and, if the meridian of your place on the globe be set even with the meridian stile, all the parts of the globe that the sun shines upon, will answer to those places of the real earth which are then enlightened by the sun. The places where the shade is just coming upon the globe, answer to all those places of the earth to which the sun is then setting; as the places where it is going off, and the light coming on, answer to all the places of the earth where the sun is then rising. And lastly, if the hour of VI be marked on the equator in the meridian of your place (as it is marked on the meridian of London in the figure), the division of the light and shade on the globe will show the time of the day.

The northern stile of the dial (opposite to the southern or meridian one) is hid from the sight in the figure, by the axis of the globe. The hours in the hollow to which that stile belongs, are also supposed to be hid by the oblique view of the figure: but they are the same as the hours in the front-hollow. Those also in the right and left hand semicircular hollows are mostly hid from sight; and so also are all those on the sides next the eye of the four acute angles.

The construction of this dial is as follows:

Fig. 9. On a thick square piece of wood, or metal, draw the lines ac and bd , as far from each other as you intend for the thickness of the stile $abcd$; and in the same manner, draw the like thickness of the other three stiles $efgb$, $iklm$, and $nopq$, all standing outright as from the center.

With any convenient opening of the compasses, as aA , (so as to leave proper strength of stuff when KI is equal to aA), set one foot in a , as a center, and with the other foot describe the quadrantal arc Ac . Then, without altering the compasses, set one foot in b , as a center, and with the other foot describe the quadrant dB . All the other quadrants in the figure must be described in the same manner, and with the same open-

ing of the compasses, on their centers $efik$, and no ; and each quadrant divided into six equal parts, for as many hours, as in the figure; each of which parts must be subdivided into 4, for the half-hours and quarters.

At equal distances from each corner, draw the right lines Ip and Kp , Lq and Mq , Nr and Or , Ps and Qs ; to form the four angular hollows IpK , LqM , NrO , and PsQ ; making the distances between the tips of these hollows, as IK , LM , NO , and PQ , each equal to the radius of the quadrants; and leaving sufficient room within the angular points pqr and s , for the equinoctial in the middle.

To divide the insides of these angles properly for the hour-spaces thereon, take the following method:

Set one foot of the compasses in the point I as a center, and open the other to K ; and with that opening describe the arc Kt : then, without altering the compasses, set one foot in K , and with the other foot describe the arc It . Divide each of these arcs, from I and K to their intersection at t , into four equal parts; and from their centers I and K , through the points of division, draw the right lines $I3$, $I4$, $I5$, $I6$, $I7$; and $K2$, $K1$, $K12$, $K11$; and they will meet the sides Kp and Ip of the angle IpK where the hours thereon must be placed. And these hour-spaces in the arcs must be subdivided into four equal parts, for the half hours and quarters.—Do the like for the other three angles, and draw the dotted lines, and set the hours in the insides where those lines meet them, as in the figure: and the like hour-lines will be parallel to each other in all the quadrants and in all the angles.

Mark points for all these hours on the upper side: and cut out all the angular hollows and the quadrantal ones quite through the places where their four gnomons must stand; and lay down the hours on their insides, (as in fig. 10.), and set in their gnomons, which must be as broad as the dial is thick; and this breadth and thickness must be large enough to keep the shadows of the gnomons from ever falling quite out at the sides of the hollows, even when the sun's declination is at the greatest.

Lastly, draw the equinoctial dial in the middle, all the hours of which are equidistant from each other; and the dial will be finished.

As the sun goes round, the broad end of the shadow of the stile $abcd$ will show the hours in the quadrant Ac , from sun-rise till VI in the morning; the shadow from the end M will show the hours on the side Lq from V to IX in the morning; the shadow of the stile $efgb$ in the quadrant Dg (in the long days) will show the hours from sun-rise till VI in the morning; and the shadow of the end N will show the morning hours, on the side Or , from III to VII.

Just as the shadow of the northern stile $abcd$ goes off the quadrant Ac , the shadow of the southern stile $iklm$ begins to fall within the quadrant Fh , at VI in the morning; and shows the time, in that quadrant, from VI till XII at noon; and from noon till VI in the evening in the quadrant mE . And the shadow of the end O shows the time from XI in the forenoon till III in the afternoon, on the side rN ; as the shadow of the end P shows the time from

Plate
CLIX.

from IX in the morning till I o'clock in the afternoon, on the side Qs .

At noon, when the shadow of the eastern stile $efgb$ goes off the quadrant bC (in which it showed the time from VI in the morning till noon, as it did in the quadrant gD from sun-rise till VI in the morning), the shadow of the western stile $nopq$ begins to enter the quadrant Hp ; and shows the hours thereon from XII at noon till VI in the evening; and after *that* till sun-set, in the quadrant qG ; and the end Q casts a shadow on the side Ps from V in the evening till IX at night, if the sun be not set before that time.

The shadow of the end I shows the time on the side Kp from III till VII in the afternoon; and the shadow of the stile $abcd$ shows the time from VI in the evening till the sun sets.

The shadow of the upright central wire, that supports the globe at top, shows the time of the day, in the middle or equinoctial dial, all the summer half-year, when the sun is on the north side of the equator.

Having shown how to make sun-dials by the assistance of a good globe, or of a dialing scale, we shall now proceed to the method of constructing dials arithmetically; which will be more agreeable to those who have learned the elements of trigonometry, because globes and scales can never be so accurate as the logarithms in finding the angular distances of the hours. Yet as a globe may be found exact enough for some other requisites in dialing, we shall take it in occasionally.

The construction of sun-dials on all planes whatever may be included in one general rule; intelligible, if that of a horizontal dial for any given latitude be well understood. For there is no plane, however obliquely situated with respect to any given place, but what is parallel to the horizon of some other place; and therefore, if we can find that other place by a problem on the terrestrial globe, or by a trigonometrical calculation, and construct a horizontal dial for it, that dial applied to the plane where it is to serve will be a true dial for that place.—Thus, an erect direct south dial in $51\frac{1}{2}$ degrees north latitude, would be a horizontal dial on the same meridian, 90 degrees southward of $51\frac{1}{2}$ degrees north latitude: which falls in with $38\frac{1}{2}$ degrees of south latitude. But if the upright plane declines from facing the south at the given place, it would still be a horizontal plane 90 degrees from that place, but for a different longitude, which would alter the reckoning of the hours accordingly.

CASE I. 1. LET us suppose that an upright plane at London declines 36 degrees westward from facing the south, and that it is required to find a place on the globe to whose horizon the said plane is parallel; and also the difference of longitude between London and that place.

Rectify the globe to the latitude of London, and bring London to the zenith under the brass meridian; then that point of the globe which lies in the horizon at the given degree of declination (counted westward from the south point of the horizon) is the place at which the above mentioned plane would be horizontal.

—Now, to find the latitude and longitude of that place, keep your eye upon the place, and turn the globe eastward until it comes under the graduated edge of the

brass meridian; then the degree of the brass meridian that stands directly over the place is its latitude; and the number of degrees in the equator, which are intercepted between the meridian of London and the brass meridian, is the place's difference of longitude.

Thus, as the latitude of London is $51\frac{1}{2}$ degrees north, and the declination of the place is 36 degrees west; elevate the north pole $51\frac{1}{2}$ degrees above the horizon, and turn the globe until London comes to the zenith, or under the graduated edge of the meridian; then count 36 degrees on the horizon westward from the south point, and make a mark on that place of the globe over which the reckoning ends, and bringing the mark under the graduated edge of the brass meridian, it will be found to be under $30\frac{1}{4}$ degrees in south latitude; keeping it there, count in the equator the number of degrees between the meridian of London and the brazen meridian (which now becomes the meridian of the required place), and you will find it to be $42\frac{3}{4}$. Therefore an upright plane at London, declining 36 degrees westward from the south, would be a horizontal plane at that place, whose latitude is $30\frac{1}{4}$ degrees south of the equator, and longitude $42\frac{3}{4}$ degrees west of the meridian of London.

Which difference of longitude being converted into time, is 2 hours 51 minutes.

The vertical-dial declining westward 36 degrees at London, is therefore to be drawn in all respects as a horizontal dial for south latitude $30\frac{1}{4}$ degrees; save only that the reckoning of the hours is to anticipate the reckoning on the horizontal dial by 2 hours 51 minutes: for so much sooner will the sun come to the meridian of London, than to the meridian of any place whose longitude is $42\frac{3}{4}$ degrees west from London.

2. But to be more exact than the globe will show us, we shall use a little trigonometry.

Let $NESW$ be the horizon of London, whose zenith is Z , and P the north pole of the sphere; and let Zb be the position of a vertical plane at Z , declining westward from S (the south) by an angle of 36 degrees; on which plane an erect-dial for London at Z is to be described. Make the semidiameter ZD perpendicular to Zb ; and it will cut the horizon in D , 36 degrees west of the south S . Then a plane, in the tangent HD , touching the sphere in D , will be parallel to the plane Zb : and the axis of the sphere will be equally inclined to both these planes.

Let WQE be the equinoctial, whose elevation above the horizon of Z (London) is $38\frac{1}{2}$ degrees; and PRD be the meridian of the place D , cutting the equinoctial in R . Then it is evident, that the arc RD is the latitude of the place D (where the plane Zb would be horizontal) and the arc RQ is the difference of longitude of the planes Zb and DH .

In the spherical triangle WDR , the arc WD is given, for it is the complement of the plane's declination from S to south; which complement is 54° (*viz.* $90^\circ - 36^\circ$); the angle at R , in which the meridian of the place D cuts the equator, is a right angle; and the angle RWD measures the elevation of the equinoctial above the horizon of Z , namely $38\frac{1}{2}$ degrees. Say therefore, As radius is to the co-sine of the plane's declination from the south, so is the co-sine of the latitude of Z to the sine of RD the latitude of D : which is of a different denomination

denomination from the latitude of Z , because Z and D are on different sides of the equator.

As radius - - - - - 10.00000
To co-sine $36^{\circ} 0' = RQ$ 9.90796
So co-sine $51^{\circ} 30' = QZ$ 9.79415

To sine $30^{\circ} 14' = DR$ (9.70211) = the lat. of D , whose horizon is parallel to the vertical plane Zb at Z .

$N. B.$ When radius is made the first term, it may be omitted; and then by subtracting it mentally from the sum of the other two, the operation will be shortened. Thus, in the present case,

To the logarithmic sine of $WR = * 54^{\circ} 0'$ 9.90796
Add the logarithmic sine of $RD = † 38^{\circ} 30'$ 9.79415

Their sum—radius - - - - - 9.70211
gives the same solution as above. And we shall keep to this method in the following part of this article.

To find the difference of longitude of the places D and Z , say, As radius is to the co-sine of $38\frac{1}{2}$ degrees, the height of the equinoctial at Z , so is the co-tangent of 36 degrees, the plane's declination, to the co-tangent of the difference of longitudes. Thus,

To the logarithmic sine of $‡ 51^{\circ} 30'$ 9.89354
Add the logarithmic tang. of $§ 54^{\circ} 0'$ 10.13874

Their sum—radius - - - - - 10.03228
is the nearest tangent of $47^{\circ} 8' = WR$: which is the co-tangent of $42^{\circ} 52' = RQ$, the difference of longitude sought. Which difference, being reduced to time, is 2 hours $51\frac{1}{2}$ minutes.

3. And thus having found the exact latitude and longitude of the place D , to whose horizon the vertical plane at Z is parallel, we shall proceed to the construction of a horizontal dial for the place D , whose latitude is $30^{\circ} 14'$ south; but anticipating the time at D by 2 hours 51 minutes (neglecting the $\frac{1}{2}$ min. in practice), because D is so far westward in longitude from the meridian of London; and this will be a true vertical dial at London, declining westward 36 degrees.

Fig. 5. Assume any right line CSL for the substile of the dial, and make the angle KCP equal to the latitude of the place (*viz.* $30^{\circ} 14'$), to whose horizon the plane of the dial is parallel; then CRP will be the axis of the stile, or edge that casts the shadow on the hours of the day, in the dial. This done, draw the contingent line EQ , cutting the substilar line at right angles in K ; and from K make KR perpendicular to the axis CRP . Then $KG (=KR)$ being made radius, that, is equal to the chord of 60° or tangent of 45° on a good sector, take $42^{\circ} 52'$ (the difference of longitude of the places Z and D) from the tangents, and having set it from K to M , draw CM for the hour-line of XII. Take KN , equal to the tangent of an angle less by 15 degrees than KM ; that is, the tangent of $27^{\circ} 52'$: and through the point N draw CN for the hour-line of I. The tangent of $12^{\circ} 52'$ (which is 15° less than $27^{\circ} 42'$), set off the same way, will give a point between K and N , through which the hour-line of II is to be drawn. The tangent of $2^{\circ} 8'$ (the difference between 45° and $52^{\circ} 52'$) placed on the other side of CL , will determine the point through which

the hour-line of III is to be drawn: to which $2^{\circ} 8'$, if the tangent of 15° be added, it will make $17^{\circ} 8'$; and this set off from K towards Q on the line EQ , will give the point for the hour-line of IV: and so of the rest.—The forenoon hour-lines are drawn the same way, by the continual addition of the tangents 15° , 30° , 45° , &c. to $42^{\circ} 52'$ (= the tangent of KM) for the hours of XI, X, IX, &c. as far as necessary; that is, untill there be five hours on each side of the substile. The sixth hour, accounted from that hour or part of the hour on which the substile falls, will be always in a line perpendicular to the substile, and drawn through the center C .

4. In all erect dials, CM , the hour-line of XII, is perpendicular to the horizon of the place for which the dial is to serve; for that line is the intersection of a vertical plane with the plane of the meridian of the place, both which are perpendicular to the plane of the horizon: and any line HO or bo , perpendicular to CM , will be a horizontal line on the plane of the dial, along which line the hours may be numbered; and CM being set perpendicular to the horizon, the dial will have its true position.

5. If the plane of the dial had declined by an equal angle towards the east, its description would have differed only in this, that the hour-line of XII would have fallen on the other side of the substile CL ; and the line HO would have a subcontrary position to what it has in this figure.

6. And these two dials, with the upper points of their stiles turned toward the north pole, will serve for other two planes parallel to them; the one declining from the north toward the east, and the other from the north toward the west, by the same quantity of angle. The like holds true of all dials in general, whatever be their declination and obliquity of their planes to the horizon.

CASE II. 7. If the plane of the dial not only declines, but also reclines, or inclines. Suppose its declination from fronting the south S be equal to the arc SD on the horizon; and its reclination be equal to the arc Dd of the vertical circle DZ : then it is plain, that if the quadrant of altitude ZdD on the globe cuts the point D in the horizon, and the reclination is counted upon the quadrant from D to d : the intersection of the hour-circle PRd , with the equinoctial WQE , will determine Rd , the latitude of the place d , whose horizon is parallel to the given plane Zb at Z ; and RQ will be the difference in longitude of the places at d and Z .

Trigonometrically thus: Let a great circle pass thro' the three points, W , d , E ; and in the triangle WdD , right angled at D , the sides WD and Dd are given; and thence the angle DWd is found, and so is the hypotenuse Wd . Again, the difference, or the sum, of DWd and DWR , the elevation of the equinoctial above the horizon of Z , gives the angle dWR ; and the hypotenuse of the triangle WRd was just now found; whence the sides Rd and WR are found, the former being the latitude of the place d , and the latter the complement of RQ , the difference of longitude sought.

Thus,

* The co-sine of 36.0 , or of RQ . † The co-sine of $51. 30$, or of QZ . ‡ The co-sine of $38. 30$, or of WDR .
§ The co-tangent of 36.0 , or of DW .

Fig. 6.

Thus, if the latitude of the place Z be $52^{\circ} 10'$ north; the declination SD of the plane Zb (which would be horizontal at d) be 36° , and the reclination be 15° , or equal to the arc Dd ; the south latitude of the place d , that is the arc Rd , will be $15^{\circ} 9'$; and RQ , the difference of the longitude, $36^{\circ} 2'$. From these data, therefore, let the dial (fig. 7.) be described, as in the former example.

8. There are several other things requisite in the practice of dialing; the chief of which shall be given in the form of arithmetical rules, simple and easy to those who have learned the elements of trigonometry. For in practical arts of this kind, arithmetic should be used as far as it can go; and scales never trusted to, except in the final construction, where they are absolutely necessary in laying down the calculated hour-distances on the plane of the dial.

Rule I. To find the angles which the hour-lines on any dial make with the substile. To the logarithmic sine of the given latitude, or of the stile's elevation above the plane of the dial, add the logarithmic tangent of the hour (*) distance from the meridian, or from the (†) substile; and the sum minus radius will be the logarithmic tangent of the angle sought.

Fig. 5.

For KC is to KM in the ratio compounded of the ratio of KC to KG ($=KR$) and of KG to KM ; which making CK the radius 10,000,000, or 10,0000, or 10, or 1, are the ratio of 10,000,000, or of 10,0000, or of 10, or of 1, to $KG \times KM$.

Thus, in a horizontal dial, for latitude $51^{\circ} 30'$, to find the angular distance of XI in the forenoon, or I in the afternoon, from XII .

To the logarithmic sine of $51^{\circ} 30'$ 9.89354†
Add the logarithmic tang. of $51^{\circ} 0'$ 9.42805

The sum—radius is - - - 9.32159—the logarithmic tangent of $11^{\circ} 50'$, or of the angle which the hour-line of XI or I makes with the hour of XII .

And by computing in this manner, with the sine of the latitude, and the tangents of $30, 45, 60$, and 75° , for the hours of $II, III, IIII$, and V in the afternoon; or of $X, IX, VIII$, and VII in the forenoon; you will find their angular distances from XII to be $24^{\circ} 18', 38^{\circ} 3', 53^{\circ} 35'$, and $71^{\circ} 6'$; which are all that there is occasion to compute for.—And these distances may be set off from XII by a line of chords; or rather, by taking 1000 from a scale of equal parts, and setting that extent as a radius from C to XII ; and then, taking 209 of the same parts (which are the natural tangent of $11^{\circ} 50'$), and setting them from XII to XI and I , on the line bz , which is perpendicular to $CXII$; and so for the rest of the hour-lines, which, in the table of natural tangents, against the above distances, are 451, 782, 1355, and 2920, of such equal parts from XII , as the radius $CXII$ contains 1000.

No 100.

And lastly, set off 1257 (the natural tangent of $51^{\circ} 30'$) for the angle of the stile's height, which is equal to the latitude of the place.

Rule II. The latitude of the place, the sun's declination, and his hour distance from the meridian, being given, to find (1.) his altitude, (2.) his azimuth. (1.) Let d be the sun's place, dR his declination; and, in the triangle PZd , Pd the sum, or the difference, of dR , and the quadrant PR , being given by the supposition, as also the complement of the latitude PZ , and the angle dPZ , which measures the horary distance of d from the meridian; we shall (by Case 4. of Keill's oblique spheric Trigonometry) find the base Zd , which is the sun's distance from the zenith, or the complement of his altitude.

And (2.) as sine Zd : sine Pd : : sine dPZ : dZP , or of its supplement DZS , the azimuthal distance from the south.

Or the practical rule may be as follows:

Write A for the sine of the sun's altitude, L and for the sine and co-sine of the latitude, D and d for the sine and co-sine of the sun's declination, and H for the sine of the horary distance from VI .

Then the relation of H to A will have three varieties.

1. When the declination is toward the elevated pole, and the hour of the day is between XII and VI ; it is

$$A = LD + Hld, \text{ and } H = \frac{A - LD}{ld}$$

2. When the hour is after VI . it is $A = LD - Hld$, and $H = \frac{LD + A}{ld}$

3. When the declination is toward the depressed pole, we have $A = Hld - LD$, and $H = \frac{A + LD}{ld}$

Which theorems will be found useful, and expeditious enough for solving those problems in geography and dialing which depend on the relation of the sun's altitude to the hour of the day.

Example I. Suppose the latitude of the place to be $51\frac{1}{2}$ degrees north: the time five hours distant from XII , that is, an hour after VI in the morning, or before VI in the evening; and the sun's declination 20° north. Required the sun's altitude?

Then to log. $L = \log. \sin. 51^{\circ} 30'$ 1.89354**
add log. $D = \log. \sin. 20^{\circ} 0'$ 1.53405

Their sum 1.42759 gives

$LD = \log. \sin. 0.267664$, in the natural sines.

And, to log. $H = \log. \sin. \dagger\dagger 15^{\circ} 0'$ 1.41300

add { log. $l = \log. \sin. \dagger\dagger 38^{\circ} 0'$ 1.79414

{ log. $d = \log. \sin. \S\S 70^{\circ} 0'$ 1.97300

Their sum 1.18014 gives

$Hld = \log. \sin. 0.151408$, in the natural sines.

And

(*) That is, of $15, 30, 45, 60, 75^{\circ}$, for the hours of $I, II, III, IIII, V$, in the afternoon; and $XI, X, IX, VIII, VII$, in the afternoon.

(†) In all horizontal dials, and erect north or south dials, the substile and meridian are the same; but in all declining dials, the substile line makes an angle with the meridian.

(‡) In which case, the radius CK is supposed to be divided into 10,000 equal parts.

** Here we consider the radius as unity, and not 10,000; by which, instead of the index 9, we have—1 as above; which is of no farther use than making the work a little easier.

†† The distance of one hour from VI .

§§ The co-declination of the sun.

‡‡ The co-latitude of the place.

Plate
CLIX.

And these two numbers (0.267664 and 0.151408) make 0.419072 = A ; which, in the table, is the nearest natural sine of $24^{\circ} 47'$, the sun's altitude sought.

The same hour-distance being assumed on the other side of VI, then $LD-Hld$ is 0.116256, the sine of $6^{\circ} 40\frac{1}{2}'$; which is the sun's altitude at V in the morning, or VII in the evening, when his north declination is 20° .

But when the declination is 20° south (or towards the depressed pole) the difference $Hld-LD$ becomes negative; and thereby shows, that an hour before VI in the morning, or past VI in the evening, the sun's centre is $6^{\circ} 40\frac{1}{2}'$ below the horizon.

Examp. 2. From the same data, to find the sun's azimuth. If H , L , and D , are given, then (by par. 2. of Rule II.) from H having found the altitude and its complement Zd ; and the arc Pd (the distance from the pole) being given; say, As the co-sine of the altitude is to the sine of the distance from the pole, so is the sine of the hour-distance from the meridian to the sine of the azimuth distance from the meridian.

Let the latitude be $51^{\circ} 30'$ north, the declination $15^{\circ} 9'$ south, and the time II h. 24 m. in the afternoon, when the sun begins to illuminate a vertical wall, and it is required to find the position of the wall.

Then by the foregoing theorems, the complement of the altitude will be $81^{\circ} 32\frac{1}{2}'$, and Pd the distance from the pole being $109^{\circ} 5'$, and the horary distance from the meridian, or the angle dPZ , 36° .

To log. sin. $74^{\circ} 51'$	-	1.98464
Add log. sin. $36^{\circ} 0'$	-	1.76922

And from the sum	-	1.75386
Take the log. sin. $81^{\circ} 32\frac{1}{2}'$	-	1.99525

Remains 1.75861 = log. sin. 35° , the azimuth distance sought.

When the altitude is given, find from thence the hour, and proceed as above.

This praxis is of singular use on many occasions; in finding the declination of vertical planes more exactly than in the common way, especially if the transits of the sun's centre are observed by applying a ruler with sights, either plain or telescopic, to the wall or plane whose declination is required. In drawing a meridian line, and finding the magnetic variation. In finding the bearings of places in terrestrial surveys; the transits of the sun over any place, or his horizontal distance from it, being observed, together with the altitude and hour. And thence determining small differences of longitude. In observing the variations at sea, &c.

24
Improved
declinator.

The declination, inclination, and reclinacion, of planes, are frequently taken with a sufficient degree of accuracy by an instrument called a declinator or declinator.

Plate
CLXI.
fig. 6.

The construction of this instrument, as somewhat improved by Mr Jones, is as follows: On a mahogany board $ABIK$, is inserted a semicircular arch $AGEB$ of ivory or box-wood, divided into two quadrants of 90° each, beginning from the middle G . On the centre C turns a vertical quadrant DFE , divided into 90° , beginning from the base E ; on which is a moveable index CF , with a small hole at F for the sun's rays to pass thro', and form a spot on a

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mark at C . The lower extremity of the quadrant at E is pointed, to mark the linear direction of the quadrant when applied to any other plane; as this quadrant takes off occasionally, and a plumb-line P hangs at the centre on C , for taking the inclinations and reclinations of planes. At H , on the plane of the board, is inserted a compass of points and degrees, with a magnetical needle turning on a pivot over it. The addition of the moveable quadrant and index considerably extend the utility of the declinator, by rendering it convenient for taking equal altitudes of the sun, the sun's altitude, and bearing, at the same time, &c.

To apply this instrument in taking the declination of a wall or plane: Place the side ACB in an horizontal direction to the plane proposed, and observe what degree or point of the compass the N part of the needle stands over from the north or the south, and it will be the declination of the plane from the north or south accordingly. In this case, allowance must be made for the variation of the needle (if any) at the place; and which, if not previously known, will render this operation very inaccurate. At London it is now $22^{\circ} 30'$ to the west.

Another way more exact may be used, when the sun shines out half an hour before noon. The side ACB being placed against the plane, the quadrant must be so moved on the semicircle AGB , and the index CF on DE , till the sun's rays passing through the hole at F fall exactly on the mark at G , and continued so till the sun requires the index to be raised no higher: you will then have the meridian or greatest altitude of the sun; and the angle contained between G and E will be the declination required. The position of CE is the meridian or 12 o'clock line. But the most exact way for taking the declination of a plane, or finding a meridian line, by this instrument, is, in the forenoon, about two or three hours before 12 o'clock, to observe two or three heights or altitudes EF of the sun; and at the same time the respective angular polar distances GE from G : write them down; and in the afternoon watch for the same, or one of the same altitudes, and mark the angular distances or distance on the quadrant AG : Now, the division or degree exactly between the two noted angular distances will be the true meridian, and the distance at which it may fall from the C of the divisions at G will be the declination of the plane. The reason for observing two or three altitudes and angles in the morning is, that in case there should be clouds in the afternoon, you may have the chance of one corresponding altitude.

The quadrant occasionally takes off at C , in order to place it on the surface of a pedestal or plane intended for an horizontal dial; and thereby from equal altitudes of the sun, as above, draw a meridian or 12 o'clock line to set the dial by.

The base $ABIK$ serves to take the inclination and reclinacion of planes. In this case, the quadrant is taken off, and the plummet P is fitted on a pin at the centre C : then the side IGK being applied to the plane proposed, as QL (fig. 7.) of the plumb-line cuts the semicircle in the point G , the plane is horizontal; or if it cut the quadrant in any point at S , then will GCS be the angle of inclination. Lastly, if applying the

Plate
CLXI.25
To take by
it the de-
clination,
&c. and to
find a me-
ridian line.

Plate
CLXI.

the side ACB (fig. 7.) to the plane, the plummet cuts G , the plane is vertical; or if it cuts either of the quadrants, it is accordingly the angle of reclination. Hence, if the quantity of the angle of inclination be compared with the elevation of the pole and equator, it is easily known whether the plane be inclined or reclined.

Of the double Horizontal Dial, and the Babylonian and Italian Dials.

To the *gnomonic* projection, there is sometimes added a *stereographic* projection of the hour-circles, and the parallels of the sun's declination; on the same horizontal plane; the upright side of the gnomon being sloped into an edge, standing perpendicularly over the centre of the projection; so that the dial, being in its due position, the shadow of that perpendicular edge is a vertical circle passing through the sun, in the stereographic projection.

The months being duly marked on this dial, the sun's declination, and the length of the day at any time, are had by inspection (as also his latitude, by means of a scale of tangents). But its chief property is, that it may be placed true, whenever the sun shines, without the help of any other instrument.

Fig. 6.

Let d be the sun's place in the stereographic projection, xy the parallel of the sun's declination, Zd a vertical circle through the sun's centre, Pd the hour-circle; and it is evident, that the diameter NS of this projection being placed duly north and south, these three circles will pass through the point d . And therefore, to give the dial its due position, we have only to turn its gnomon toward the sun, on a horizontal plane, until the hour on the common gnomonic projection coincides with that marked by the hour-circle Pd , which passes through the intersection of the shadow Zd with the circle of the sun's present declination.

The Babylonian and Italian dials reckon the hours, not from the meridian as with us, but from the sun's rising and setting. Thus, in Italy, an hour before sun-set is reckoned the 23d hour: two hours before sun set the 22d hour; and so of the rest. And the shadow that marks them on the hour-lines, is that of the point of a stile. This occasions a perpetual variation between their dials and clocks, which they must correct from time to time, before it arises to any sensible quantity, by setting their clocks so much faster or slower. And in Italy, they begin their day, and regulate their clocks, not from sun-set, but from about mid twilight, when the *Ave-Maria* is said; which corrects the difference that would otherwise be between the clock and the dial.

The improvements which have been made in all sorts of instruments and machines for measuring time, have rendered such dials of little account. Yet, as the theory of them is ingenious, and they are really, in some respects, the best contrived of any for vulgar use, a general idea of their description may not be unacceptable.

Fig. 8.

Let fig. 8. represent an erect direct south wall, on which a Babylonian dial is to be drawn, showing the hours from sun-rising; the latitude of the place, whose horizon is parallel to the wall, being equal to the angle KCR . Make, as for a common dial, $KG=KR$ (which

is perpendicular to CR) the radius of the equinoctial EQ , and draw RS perpendicular to CK for the stile of the dial; the shadow of whose point R is to mark the hours, when SR is set upright on the plane of the dial.

Then it is evident, that, in the contingent line EQ , the spaces $K1$, $K2$, $K3$, &c. being taken equal to the tangents of the hour-distances from the meridian, to the radius KG , one, two, three, &c. hours after sun-rising, on the equinoctial day; the shadow of the point R will be found, at these times, respectively in the points 1, 2, 3, &c.

Draw, for the like hours after sun-rising, when the sun is in the tropic of Capricorn V , the like common lines CD , CE , CF , &c. and at these hours the shadow of the point R will be found in those lines respectively. Find the sun's altitudes above the plane of the dial at these hours; and with their co-tangents Sd , Se , Sf , &c. to radius SR , describe arcs intersecting the hour-lines in the points d , e , f , &c. so shall the right lines $1d$, $2e$, $3f$, &c. be the lines of I, II, III, &c. hours after sun-rising.

The construction is the same in every other case; due regard being had to the difference of longitude of the place at which the dial would be horizontal, and the place for which it is to serve: and likewise, taking care to draw no lines but what are necessary; which may be done partly by the rules already given for determining the time that the sun shines on any plane; and partly from this, that on the tropical days, the hyperbola described by the shadow of the point R limits the extent of all the hour-lines.

Of the right placing of Dials, and having a true Meridian Line for the regulating of Clocks and Watches.

THE plane on which the dial is to rest being duly prepared, and every thing necessary for fixing it, you may find the hour tolerably exact by a large equinoctial ring-dial, and set your watch to it. And then the dial may be fixed by the watch at your leisure.

If you would be more exact, take the sun's altitude by a good quadrant, noting the precise time of observation by a clock or watch. Then compute the time for the altitude observed; and set the watch to agree with that time, according to the sun. A Hadley's quadrant is very convenient for this purpose: for by it you may take the angle between the sun and his image reflected from a basin of water; the half of which angle, subtracting the refraction, is the altitude required. This is best done in summer; and the nearer the sun is to the prime vertical (the east or west azimuth) when the observation is made, so much the better.

Or, in summer, take two equal altitudes of the sun in the same day; one any time between 7 and 10 in the morning, the other between 2 and 5 in the afternoon: noting the moments of these two observations by a clock or watch: and if the watch shows the observations to be at equal distances from noon, it agrees exactly with the sun: if not, the watch must be corrected by half the difference of the forenoon and afternoon intervals; and then the dial may be set true by the watch.

Thus, for example, suppose you had taken the sun's altitude when it was 20 minutes past VIII in the morning

Plate
CLXI.

Plate
CLXI.

ing by the watch; and found, by observing in the afternoon, that the sun had the same altitude 10 minutes before III; then it is plain, that the watch was 5 minutes too fast for the sun: for 5 minutes after XII is the middle time between VIII h. 20 m. in the morning, and III h. 50 m. in the afternoon; and therefore, to make the watch agree with the sun, it must be set back five minutes.

²⁶
A meridian
line.

A good *meridian line*, for regulating clocks or watches, may be had by the following method.

Make a round hole, almost a quarter of an inch diameter, in a thin plate of metal; and fix the plate in the top of a south window, in such a manner, that it may recline from the zenith at an angle equal to the co-latitude of your place, as nearly as you can guess: for then the plate will face the sun directly at noon on the equinoctial days. Let the sun shine freely thro' the hole into the room; and hang a plumb-line to the ceiling of the room, at least five or six feet from the window, in such a place as that the sun's rays, transmitted through the hole, may fall upon the line when it is noon by the clock; and having marked the said place on the ceiling, take away the line.

Having adjusted a sliding bar to a dove-tail groove, in a piece of wood about 18 inches long, and fixed a hook into the middle of the bar, nail the wood to the above-mentioned place on the ceiling, parallel to the side of the room in which the window is; the groove and the bar being towards the floor: Then hang the plumb-line upon the hook in the bar, the weight or plummet reaching almost to the floor; and the whole will be prepared for farther and proper adjustment.

This done, find the true solar time by either of the two last methods, and thereby regulate your clock. Then, at the moment of next noon by the clock, when the sun shines, move the sliding-bar in the groove, untill the shadow of the plumb-line bisects the image of the sun (made by his rays transmitted thro' the hole) on the floor, wall, or on a white screen placed on the north-side of the line; the plummet or weight at the end of the line hanging freely in a pail of water placed below it on the floor.— But because this may not be quite correct for the first time, on account that the plummet will not settle immediately, even in water; it may be farther corrected on the following days, by the above method, with the sun and clock; and so brought to a very great exactness.

N. B. The rays transmitted through the hole will cast but a faint image of the sun, even on a white screen, unless the room be so darkened that no sun-shine may be allowed to enter but what comes thro' the small hole in the plate. And always, for some time before the observation is made, the plummet ought to be immersed in a jar of water, where it may hang freely; by which means the line will soon become steady, which otherwise would be apt to continue swinging.

Description of two New Instruments for facilitating the practice of Dialing.

I. *The DIALING Sector*, contrived by the late Mr Benjamin Martin, is an instrument by which dials are drawn in a more easy, expeditious, and accurate manner. It is represented on the plate as now made by Mr

Jones of Holborn. The principal lines on it are the *line of latitudes* and the *line of hours*. They are found on most of the common plane scales and sectors; but in a manner that greatly confines and diminishes their use; for, first, they are of a *fixed length*; and, secondly, *too small* for any degree of accuracy. But in this new *sector*, the *line of latitudes* is laid down, as it is called, *sector-wise*, viz. one line of latitudes upon each leg of the sector, beginning in the center of the joint, and diverging to the end (as upon other sectors), where the extremes of the two lines at 90° and 90° are nearly one inch apart, and their length $11\frac{1}{2}$ inches: which length admits of great exactness; for at the 70th degree of latitude, the divisions are to quarters of a degree or 15 minutes. This accuracy of the divisions admits of a peculiar advantage, namely, that it may be equally communicated to any length from 1 to 23 inches, by taking the *parallel* distances (see fig. 5.), viz. from 10 to 10, 20 to 20, 30 to 30, and so on as is done in like cases on the lines of sines, tangents, &c. Hence its universal use for drawing dials of any prepared size. The line of hours for this end is adapted and placed contiguous to it on the sector, and of a size large enough for the very minutes to be distinct on the part where they are smallest, which is on each side of the hour of III.

From the construction of the line of hours before shown, the divisions on each side of the hour III are the same to each end, so that the hour-line properly is only a *double line of three hours*. Hence a line of 3 hours answers all the purposes of a line of 6, by taking the double extent of 3, which is the reason why upon the sector the line of hours extends only to $4\frac{1}{2}$.

To make use of the *line of latitude* and *line of hours* on the sector: As single scales only, they will be found more accurate than those placed on the common scales and sectors, in which the hours are usually subdivided, but into 5 minutes, and the line of latitudes into whole degrees. But it is shown above how much more accurately these lines are divided on the *dialing sector*. As an example of great exactness with which horizontal and other dials may be drawn by it, on account of this new *sectoral* disposition of these scales, and how all the advantages of their great length are preserved in any lesser length of the VI o'clock line *ce* and *af*: Apply either of the distances of *ce* or *af* to the line of latitude at the given latitude of London, suppose $51^\circ 32'$ on one line to $51^\circ 32'$ on the other, in the manner shown in fig. 5. and then taking all the hours, quarters, &c. from the hour-scale by similar parallel extents, you apply them upon the lines *ed* and *fb* as before described.

As the hour-lines on the sector extend to but $4\frac{1}{2}$, the *double distance* of the hour 3, when used either *singly* or *sectorally*, must be taken, to be first applied from $51^\circ 32'$ on the latitudes, to its contact on the XII o'clock line, before the several hours are laid off. The method of drawing a vertical north or south dial is perfectly the same as for the above horizontal one; only reversing the hours as in fig. 1. and making the angle of the stile's height equal to the complement of the latitude $38^\circ 28'$.

The method of drawing a *vertical declining dial* by the sector, is almost evident from what has been already said in dialing. But more fully to comprehend

Plate
CLXI.
Fig. 4.

Fig. 2.

Fig. 3.

the matter, it must be considered there will be a variation of particulars as follows: 1. Of the *substile* or line over which the stile is to be placed; 2. The height of the stile above the plane; 3. The difference between the meridian of the place and that of the plane, or their difference of longitude. From the given *latitude of the place*, and *declination of the plane*, you calculate the three requisites just mentioned, as in the following example. Let it be required to make an *erect south dial*, declining from the meridian *westward* $28^{\circ} 43'$, in the latitude of London $51^{\circ} 32'$. The first thing to be found is the distance of the substilar line GB (fig. 3.) from the meridian of the plane $G XII$. The analogy from this is: *As radius is to the sine of the declination, so is the co-tangent of the latitude to the tangent of the distance sought*, viz. $As\ radius : 28^{\circ} 43' :: \tan g. 38^{\circ} 28' : \tan g. 20^{\circ} 55'$. This and the following analogy may be as accurately worked on the Gunter's line of sines, tangents, &c. properly placed on the sector, as by the common way from logarithms. Next, to find the plane's difference of longitude. *As the sine of the latitude is to radius, so is the tangent of the declination to the tangent of the difference of longitude*, viz. $As\ s\ 51^{\circ} 32' : radius :: \tan g. 28^{\circ} 43' : \tan g. 35^{\circ} 0'$. Lastly, to find the height of the stile: *As radius is to the co-sine of the latitude, so is the co-sine of the declination to the sine of the stile's height*, viz. $Radius : s\ 38^{\circ} 28' :: s\ 61^{\circ} 17' : s\ 33^{\circ} 5'$.

The three requisites thus obtained, the dial is drawn in the following manner: Upon the meridian line $G XII$, with any radius GC describe the arch of a circle, upon which set off $20^{\circ} 55'$ from C to B , and draw GB , which will be the substilar line, over which the stile of the dial must be placed.

At right angles to this line GB , draw $A Q$ indefinitely through the point G : then from the scale of latitudes take the height of the stile $33^{\circ} 5'$, and set it each way from G to A and Q . Lastly, take the double length of 3 on the hour-line in your compasses, and setting one foot in A or Q , with the other foot mark the line GB in D , and join $AD Q D$, and then the triangle $AD Q$ is completed upon the substilar line GB .

To lay off the hours, the plane's difference of longitude being 35° , equal to 2 h. 20 min. in time, allowing 15° to an hour, so that there will be 2 h. 20' between the point D and the meridian $G XII$, in the line AD . Therefore, take the first 20' of the hour-scale in your compasses, and set off from D to 2; then take 1 h. 20', and set off from D to 1; 2 h. 20', and set off from D to 12; 3 h. 20', from D to 11; 4 h. 20' from D to 10; and 5 h. 20' from D to 9, which will be 40' from A .

Then, on the other side of the substilar line GB , you take 40' from the beginning of the scale, and set off from D to 3; then take 1 h. 40', and set off from D to 4; also 2 h. 40', and set off from D to 5; and so on to 8, which will be 20' from Q . Then from G the center, through the several points 2, 1, 12, 11, 10, 9, on one side, and 3, 4, 5, 6, 7, 8, on the other, you draw the hour-lines, as in the figure they appear. The hour of VIII need only be drawn for the morning; for the sun goes off from this *west decliner* 20' before

VIII in the evening.—The quarters, &c. are all set off in the same manner from the hour scale as the above hours were.

The next thing is fixing the stile or gnomon, which is always placed in the substilar line GB , and which is already drawn. The stile above the plane has been found to be $33^{\circ} 5'$: therefore with any radius GB describe an obscure arch, upon which set off $33^{\circ} 5'$ from B to S , and draw GS , and the angle $SG B$ will be the true height of the gnomon above the substilar line GB .

II. The *DIALING Trigon* is another new instrument of great utility in the practice of dialing; and was also contrived by the late Mr Martin. It is composed of two graduated scales and a plane one. On the scale AB is graduated the line of latitudes; and on the scale AC , the line of hours: these properly conjoined with the plane scale BD , as shown in the figure, truly represent the gnomonical triangle, and is properly called a *dialing trigon*. The hour-scale AC is here of its full length; so that the hours, halves, quarters, &c. and every single minute (if required) may be immediately set off by a steel point; and from what has before been observed in regard to the sector, it must appear that this method by the trigon is the most expeditious way of drawing dials that any mechanism of this sort can afford. As an example of the application of this trigon in the construction of an horizontal dial for the latitude of London $51^{\circ} 32'$, you must proceed as follows: Apply the trigon to the 6 o'clock line af (fig. 1.) on the morning side, so that the line of latitudes may coincide with the 6 o'clock line, and the beginning of the divisions coincide with the center a ; and at $51^{\circ} 32'$ of the line of latitudes place the 6 o'clock edge of the line of hours, and the other end or beginning of the scale close against the plane scale cd , as by the figure at d , and fastening these bars down by the several pins placed in them to the paper and board, then the hours, quarters, &c. are all marked off with a steel point instantly, and the hour-lines drawn through them as before, and as shown in the figure. When this is done for the side af or morning hours, you move the scale of latitudes and hours to the other side ce , or afternoon side, and place the hour-scale to $51^{\circ} 32'$ as before, and push down the hours, quarters, &c. and draw the lines through them for the afternoon hours, which is clearly represented in the figure.

In like manner is an *erect north or south* dial drawn (see fig. 2.), the operation being just the same, only reversing the hours as in the figure, and marking the angles of the stile's height equal to the complement of the latitude.

This trigon may be likewise used for drawing *vertical declining dials* (fig. 3.), as it is with the same facility applied to the lines AQ , GB , and the hours and quarters marked off as before directed.

Mr Jones graduates on the scale BD of the trigon a line of chords, which is found useful for laying off the necessary angles of the stile's height. The scales of this trigon, when not in use, lie very close together, and pack up into a portable case for the pocket.

Fig. 1.

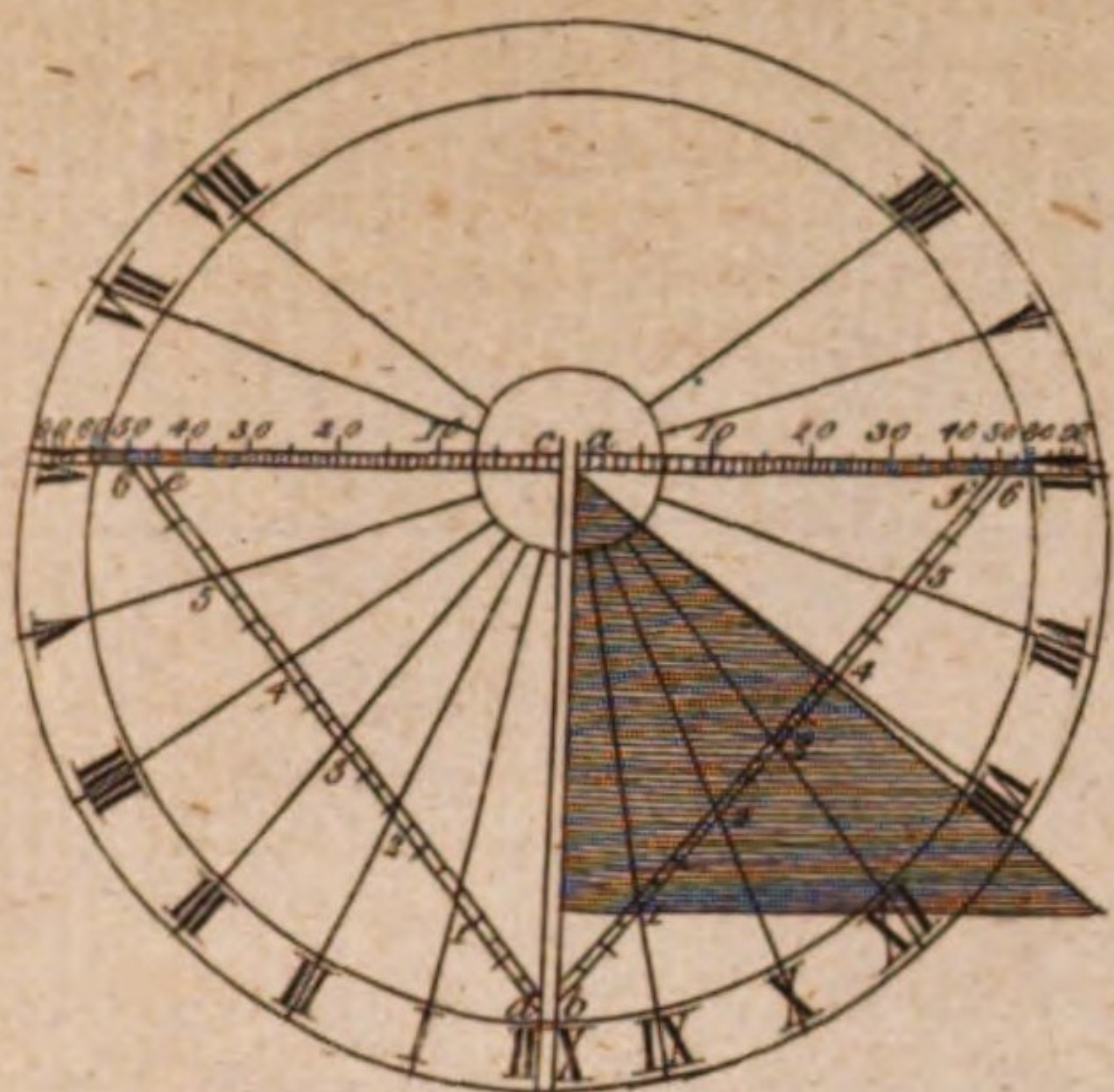


Fig. 2.

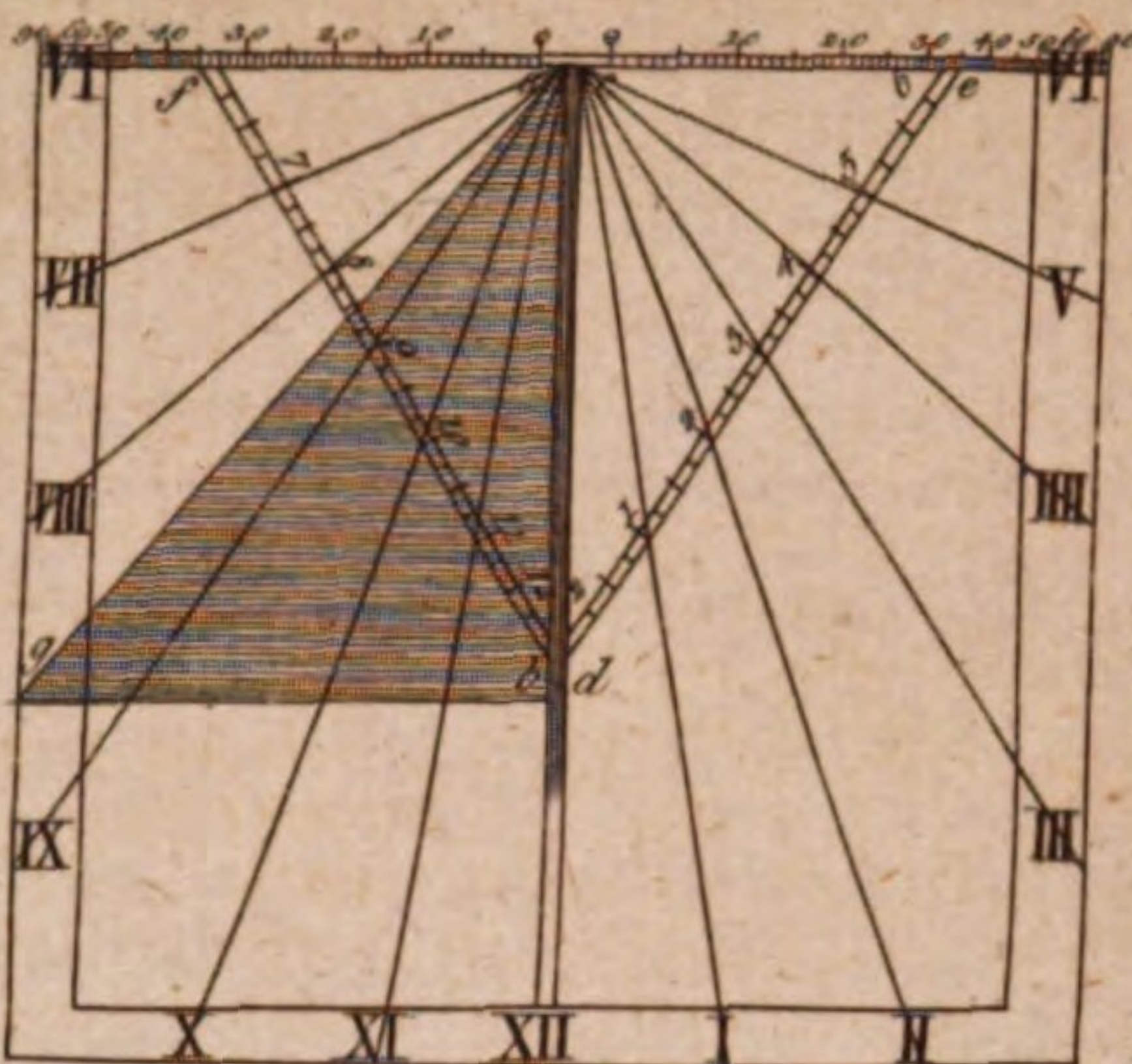


Fig. 3.

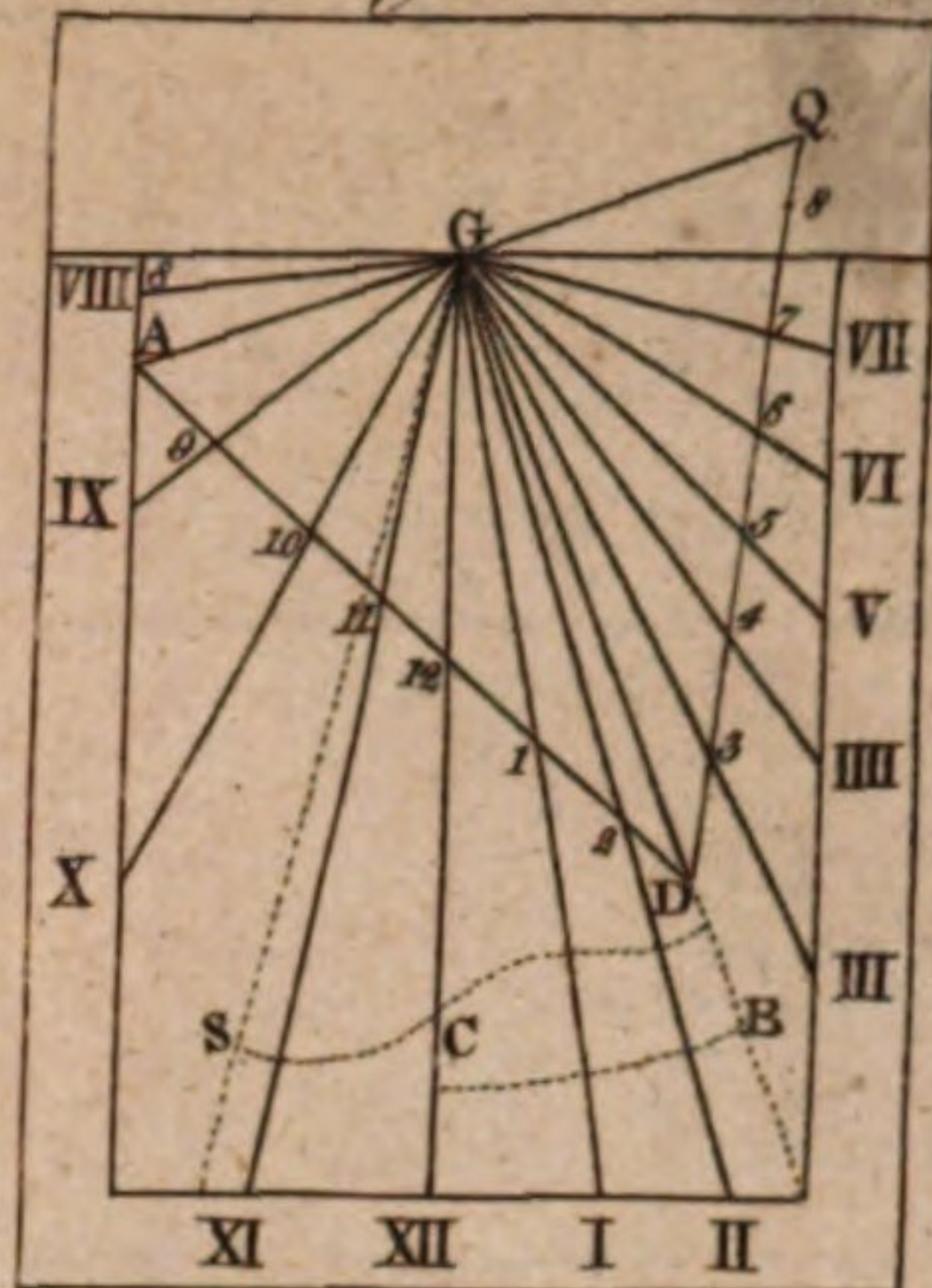


Fig. 4.

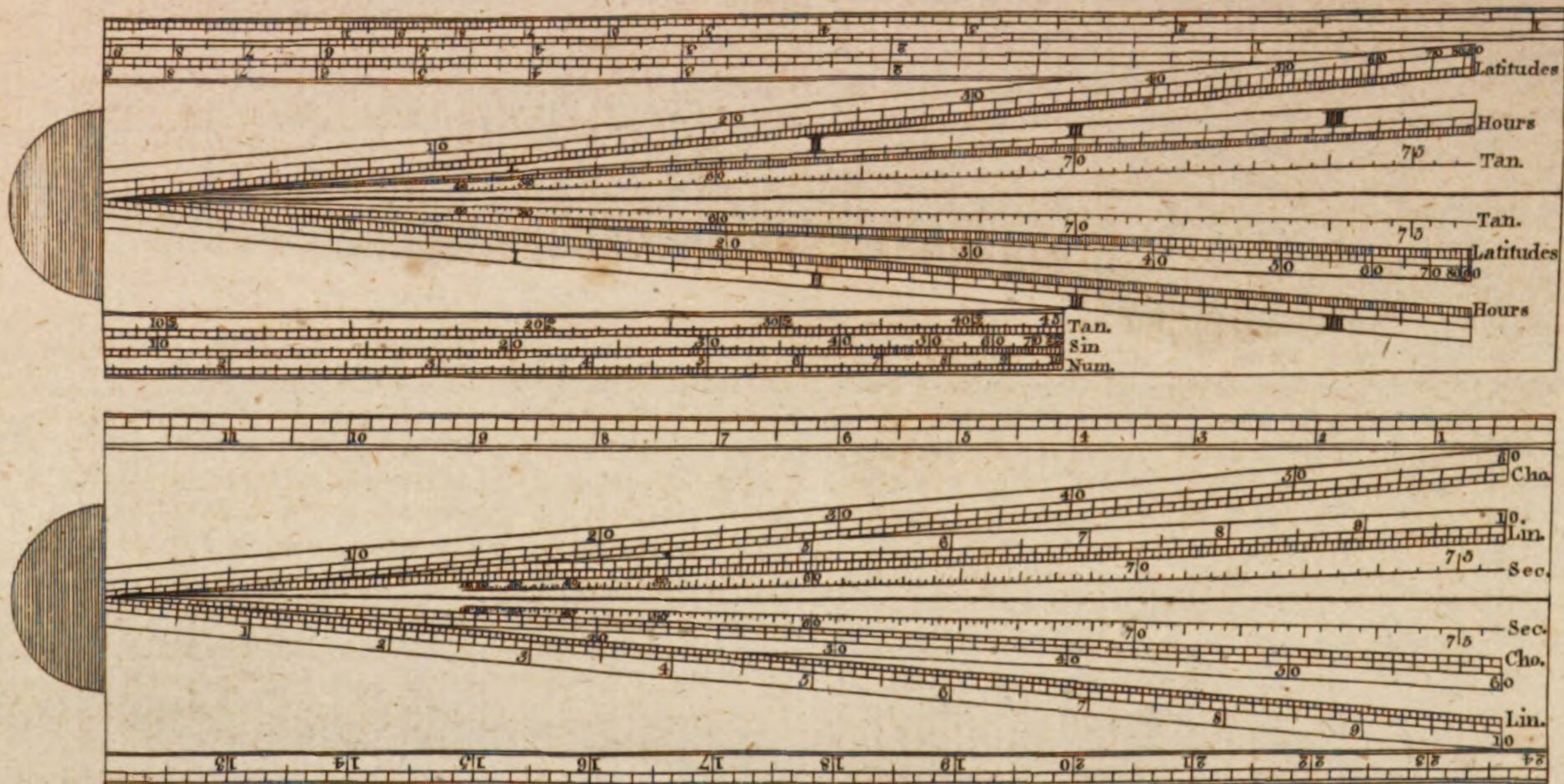


Fig. 5.

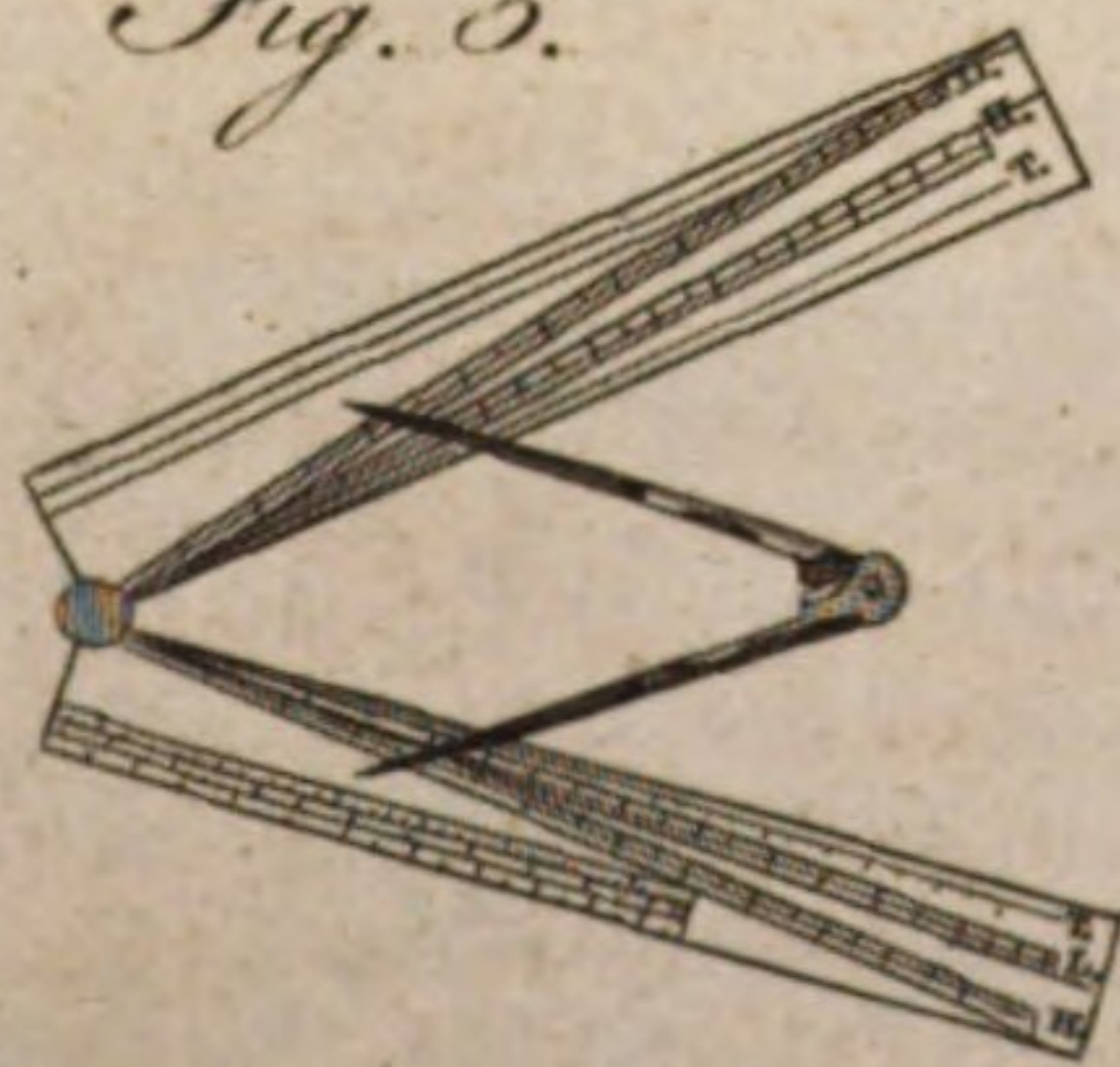


Fig. 6.

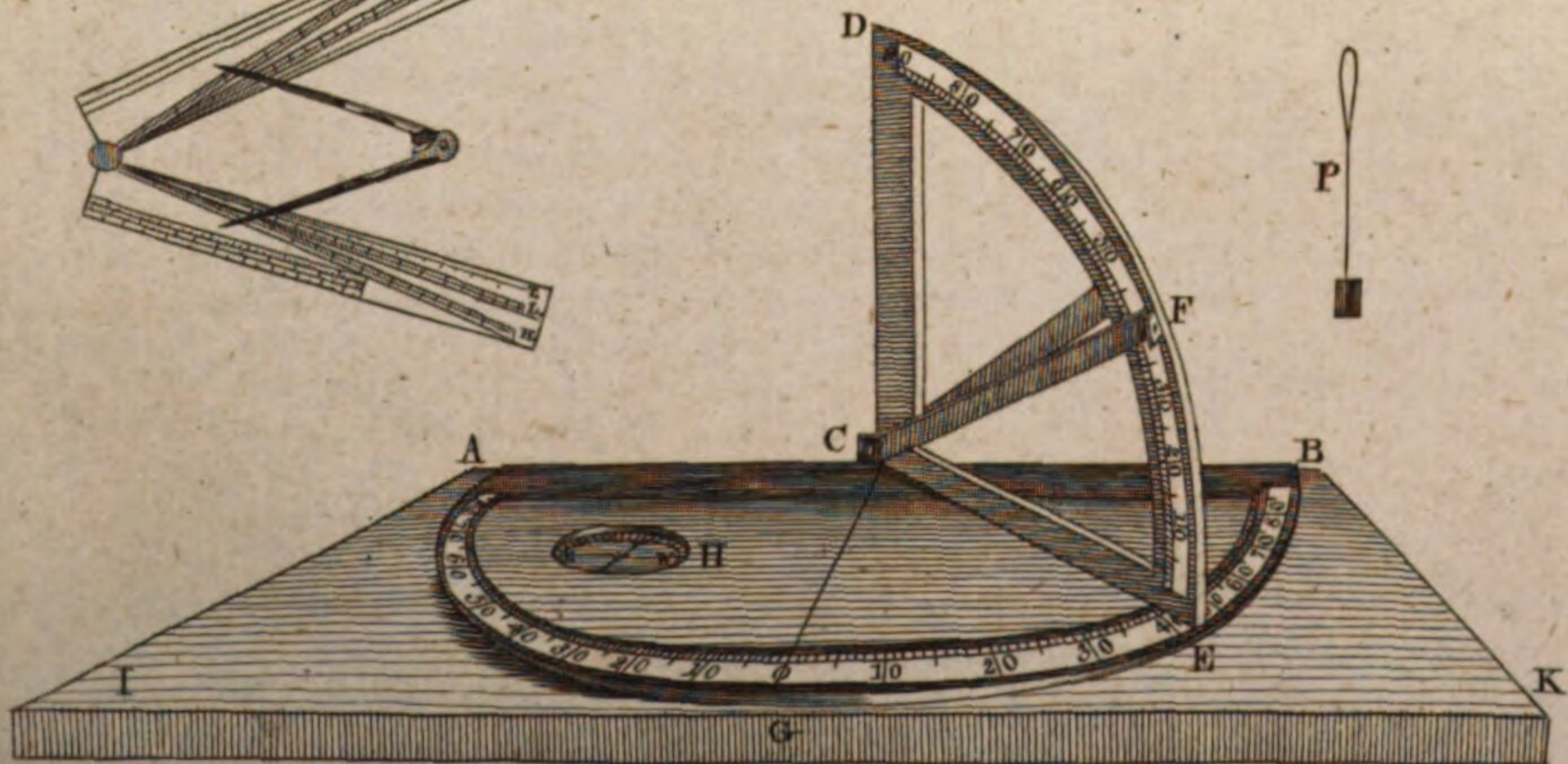
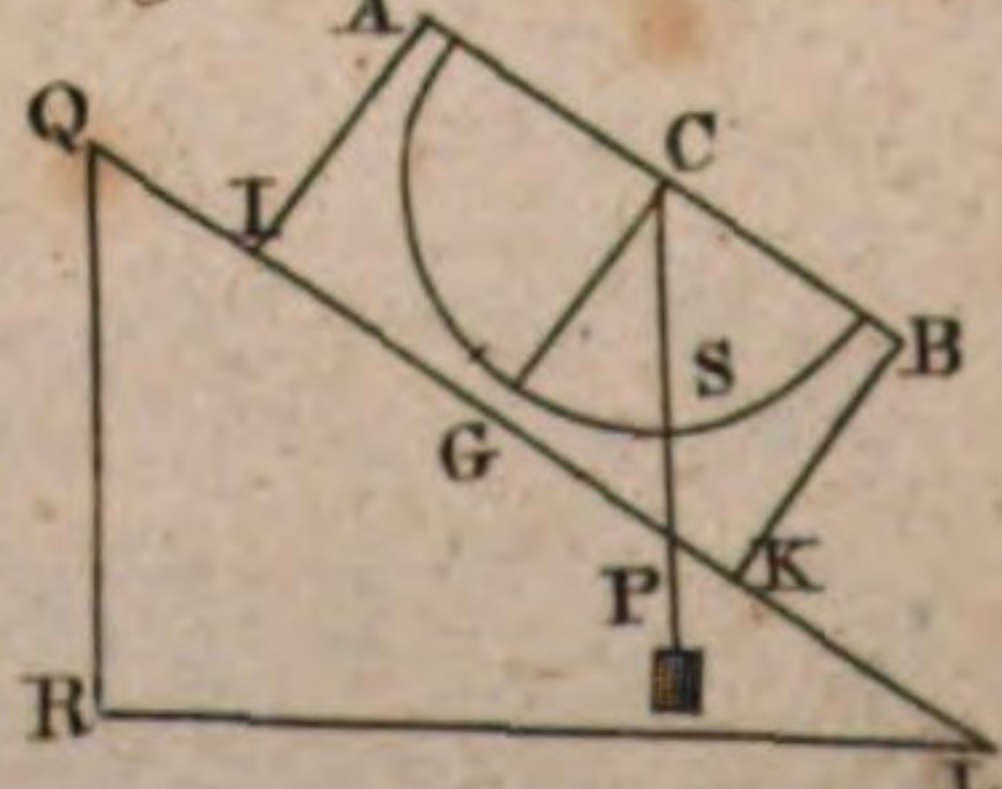


Fig. 8.



Fig. 7.



A Bell Pin Wall Sculptor fecit.

Dialing
||
Dialogue.

DIALING Lines, or *Scales*, are graduated lines, placed on rules, or the edges of quadrants, and other instruments, to expedite the construction of dials. See Plate CLVIII.

DIALING-Sector. See DIALING, p. 803, and Plate CLXI.

DIALING-Sphere, is an instrument made of brass, with several semicircles sliding over one another, on a moving horizon, to demonstrate the nature of the doctrine of spherical triangles, and to give a true idea of the drawing of dials on all manner of planes.

DIALING-Trigon. See DIALING, p. 804, and Plate CLXI.

DIALING, in a mine, called also *Plumming*, in the using of a compass (which they call *dial*), and a long line, to know which way the load or vein of ore inclines, or where to shift an air-shaft, or bring an adit to a desired place.

DIALIS, in antiquity, a Latin term signifying something that belongs to Jupiter.—The word is formed from *Διος*, the genitive of *Ζεύς*, *Jupiter*.

Flamen Dialis. See FLAMEN.

DIALITHA, in the writings of the ancients, a word used to express the elegant ornaments of the Greeks and Romans, composed of gold and gems. They also called these *lithocolia*, “cemented stones or gems;” the gold being in this case as a cement to hold the stones together. They wore bracelets and other ornamental things about their habits thus made; and their cups and table-furniture, for magnificent treats, were of this kind. The green stones were found to succeed best of all in these things; and the emerald and greenish topaz, or, as we call it, chrysolite, were most in esteem for this purpose. This use of the stones explains what Pliny very often says of them in his description: *Nihil jucundius aurum decet*, “Nothing becomes gold better:” this he says of the green topaz or chrysolite; and this and many other like passages have greatly perplexed the critics, who did not hit upon this explication.

DIALLING, or DIALING. See DIALING.

DIALOGISM, in rhetoric, is used for the soliloquy of persons deliberating with themselves. See SOLILOQUY.

DIALOGUE, in matters of literature, a conversation between two or more persons either by writing or by word of mouth.

Composition and Style of written DIALOGUE. As the end of speech is conversation, no kind of writing can be more natural than dialogue, which represents this. And accordingly we find it was introduced very early, for there are several instances of it in the Mosaic history. The ancient Greek writers also fell very much into it, especially the philosophers, as the most convenient and agreeable method of communicating their sentiments and instructions to mankind. And indeed it seems to be attended with very considerable advantages, if well and judiciously managed. For it is capable to make the driest subjects entertaining and pleasant, by its variety, and the different characters of the speakers. Besides, things may be canvassed more minutely, and many lesser matters, which serve to clear up a subject, may be introduced with a better grace, by questions and answers, objections and replies, than can be conveniently done in a continued discourse.

There is likewise a further advantage in this way of writing, that the author is at liberty to choose his speakers: And therefore, as Cicero has well observed, when we imagine that we hear persons of an established reputation for wisdom and knowledge talking together, it necessarily adds a weight and authority to the discourse, and more closely engages the attention. The subject-matter of it is very intensive; for whatever is a proper argument of discourse, public or private, serious or jocose; whatever is fit for wise and ingenious men to talk upon, either for improvement or diversion, is suitable for a dialogue.

From this general account of the nature of dialogue, it is easy to perceive what kind of style best suits it. Its affinity with EPISTLES, shows there ought to be no great difference between them in this respect. Indeed, some have been of opinion, that it ought rather to sink below that of an epistle, because dialogues should in all respects represent the freedom of conversation; whereas epistles ought sometimes to be composed with care and accuracy, especially when written to superiors. But there seems to be little weight in this argument, since the design of an epistle is to say the same things, and in the same manner, as the writer judges would be most fit and proper for him to speak, if present. And the very same thing is designed in a dialogue, with respect to the several persons concerned in it. Upon the whole, therefore, the like plain, easy, and simple style, suited to the nature of the subject, and the particular characters of the persons concerned, seems to agree to both.

But as greater skill is required in writing dialogues than letters, we shall give a more particular account of the principal things necessary to be regarded in their composition, and illustrate them chiefly from Cicero's excellent Dialogues concerning an Orator.—A dialogue, then, consists of two parts; an *introduction*, and the *body of the discourse*.

1. The *introduction* acquaints us with the place, time, persons, and occasion, of the conversation. Thus Cicero places the scene of his dialogues at Crassus's country seat; a very proper recess, both for such a debate and the parties engaged in it. And as they were persons of the first rank, and employed in the greatest affairs of state, and the discourse held them for two days; he represents it to have happened at the time of a festival, when there was no business done at Rome, which gave them an opportunity to be absent.

And because the greatest regard is to be had in the choice of the persons, who ought to be such as are well acquainted with the subject upon which they discourse; in these dialogues of Cicero, the two principal disputants are Crassus and Antony, the greatest orators of that age, and therefore the most proper persons to dispute upon the qualifications necessary for their art. One would think it scarce necessary to observe, that the conference should be held by persons who lived at the same time, and so were capable to converse together. But yet some good writers have run into the impropriety of feigning dialogues between persons who lived at distant times. Plato took this method, in which he has been followed by Macrobius. But others, who have been willing to bring persons to discourse together, who lived in different ages, without such inconsistency, have wrote dialogues of the dead. Lucian has

Dialogue.

Dialogue. has made himself most remarkable in this way. As to the number of persons in a dialogue, they may be more or less; so many as can conveniently carry on a conversation without disorder or confusion may be admitted. Some of Cicero's dialogues have only two, others three or more, and those concerning an orator seven. And it is convenient they should all, in some respects, be persons of different characters and abilities; which contributes both to the variety and beauty of the discourse, like the different attitudes of figures in a picture. Thus, in Cicero's dialogues last mentioned, Crassus excelled in art, Antony principally for the force of his genius, Catullus for the purity of his style, Scevola for his skill in the law, Cæsar for wit and humour; and tho' Sulpitius and Cotta, who were young men, were both excellent orators, yet they differed in their manner. But there should be always one chief person, who is to have the main part of the conversation; like the hero in an epic poem or a tragedy, who excels the rest in action; or the principal figure in a picture, which is most conspicuous. In Plato's dialogues, this is Socrates; and Crassus, in those of Cicero above-mentioned.

It is usual likewise, in the introduction, to acquaint us with the occasion of the discourse. Indeed this is not always mentioned; as in Cicero's dialogue of the parts of oratory, where the son begins immediately with desiring his father to instruct him in the art. But it is generally taken notice of, and most commonly represented as accidental. The reason of which may be, that such discourses appear most natural; and may likewise afford some kind of apology for the writer in managing his different characters, since the greatest men may be supposed not always to speak with the utmost exactness in an accidental conversation. Thus Cicero, in his dialogues concerning an orator, makes Crassus occasionally fall upon the subject of oratory, to divert the company from the melancholy thoughts of what they had been discoursing of before, with relation to the public disorders, and the dangers which threatened their country. But the introduction ought not to be too long and tedious. Mr Addison complains of this fault in some authors of this kind. "For though (as he says) some of the finest treatises of the most polite Latin and Greek writers are in dialogue, as many very valuable pieces of French, Italian, and English, appear in the same dress; yet in some of them there is so much time taken up in ceremony, that, before they enter on their subject, the dialogue is half over."

2. We come now to the *body* of the discourse, in which some things relating to the persons, and others to the subject, are proper to be remarked.

And as to the *persons*, the principal thing to be attended to is to keep up a justness of character through the whole. And the distinct characters ought to be so perfectly observed, that from the very words themselves it may be always known who is the speaker. This makes dialogue more difficult than single description, by reason of the number and variety of characters which are to be drawn at the same time, and each of them managed with the greatest propriety. The principal speaker should appear to be a person of great sense and wisdom, and best acquainted with the subject. No question ought to be asked him, or objection

Dialogue. started to what he says, but what he should fairly answer. And what is said by the rest should principally tend to promote his discourse, and carry it through in the most artful and agreeable manner. Where the argument is attended with difficulties, one other person or more may be introduced, of equal reputation, or near it, but of different sentiments, to oppose him, and maintain the contrary side of the question. This gives opportunity for a thorough examination of the point on both sides, and answering all objections. But if the combatants are not pretty equally matched, and masters of the subject, they will treat it but superficially. And through the whole debate there ought not to be the least wrangling, peevishness, or obstinacy; nothing but the appearance of good humour and good breeding, the gentleman and the friend, with a readiness to submit to conviction and the force of truth, as the evidence shall appear on one side or the other. In Cicero, these two characters are Crassus and Antony. And from them Mr Addison seems to have taken his Philander and Cynthio, in his *Dialogues upon the usefulness of ancient medals*, which are formed pretty much on Cicero's plan. Where younger persons are present, or such who are not equally acquainted with the subject, they should be rather upon the enquiry than dispute: And the questions they ask should be neither too long nor too frequent; that they may not too much interrupt the debate, or appear over talkative before wiser and more experienced persons. Sulpitius and Cotta sustain this character in Cicero, and Eugenius in Mr Addison. And it is very convenient there should be one person of a witty and jocular humour, to enliven the discourse at proper seasons, and make it the more entertaining, especially when the dialogue is drawn out to any considerable length. Cæsar has this part in Cicero. And in Mr Addison, Cynthio is a person of this turn, and opposes Philander in a merry way. Mr Addison's subject admitted of this: but the seriousness and gravity of Cicero's argument required a different speaker for the jocular part. Many persons ought not to speak immediately one after another. Horace's rule for plays is:

To crowd the stage is odious and absurd.

Let no fourth actor strive to speak a word.

Though Scaliger and others think a fourth person may sometimes be permitted to speak in the same scene without confusion. However, if this is not commonly to be allowed upon the stage, where the actors are present, and may be distinguished by their voice and habit; much less in a dialogue, where you have only their names to distinguish them.

With regard to the *subject*, all the arguments should appear probable at least, and nothing be advanced which may seem weak or trivial. There ought also to be an union in dialogue, that the discourse may not ramble, but keep up to the main design. Indeed, short and pleasant progressions are sometimes allowable for the ease and entertainment of the reader. But every thing should be so managed, that they may still be able to carry on the thread of the discourse in his mind, and keep the main argument in view, till the whole is finished. The writers of dialogue have not confined their discourses to any certain space of time; but either concluded them with the day, or broke off when their speakers have been tired, and reassumed them again the next day. Thus Cicero allows two days for his

Dialogue
||
Diamastigosis.

his three dialogues concerning an orator; but Mr Addison extends his to three days, allowing a day for each. Nor has the same method always been observed in composing dialogues. For sometimes the writer, by way of narrative, relates a discourse which passed between other persons. Such are the dialogues of Cicero and Mr Addison last mentioned, and many others both of the ancients and moderns. But, at other times, the speakers are introduced in person, as talking to each other. This, as Cicero observes, prevents the frequent repetition of those words, *he said*, and *he replied*; and by placing the hearer, as it were, in the conversation, gives him a more lively representation of the discourse, which makes it the more affecting. And therefore Cicero, who wrote his *dialogue of old age* in this manner, in which Cato, who was then in years, largely recounts the satisfactions of life which may be enjoyed in old age, tells his friend Atticus, he was himself so affected with that discourse, that when he reviewed it sometimes, he fancied they were not his own words, but Cato's. There are some other dialogues of Cicero, written in the same way; as that *Of friendship*, and *Of the parts of Oratory*. And both Plato and Lucian generally chose this method.

DIALOGUE, in dramatic composition. See POETRY, chap ii. 22, 23.

DIALTHÆA, in pharmacy, an unguent much used as a resolvent; so called from ALTHÆA, or marsh-mallows, which is the principal ingredient in it.

DIALUM, in botany: A genus of the monogynia order, belonging to the diandria class of plants. The corolla is pentapetalous; no calyx; the stamina at the upper side of the receptacle.

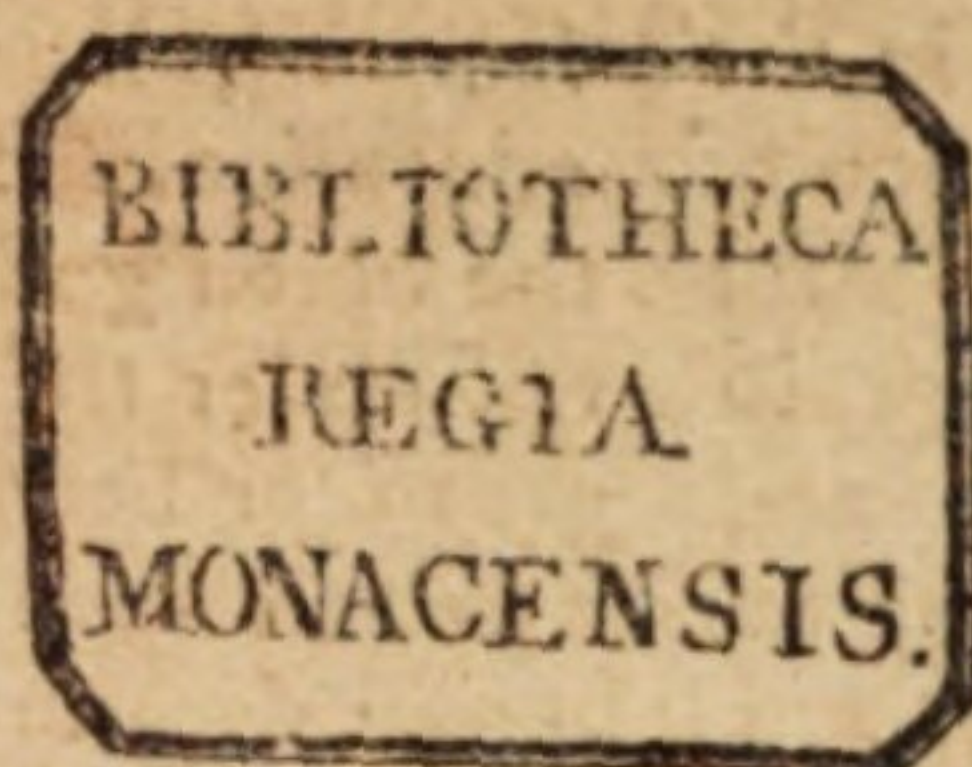
DIALYSIS, in grammar, a mark or character, consisting of two points, “”, placed over two vowels of a word, in order to separate them, because otherwise they would make them a diphthong, as *Mosaic*, &c.

DIAMASTIGOSIS, a festival at Sparta in honour of Diana Orthia, which received that name *απο του μαστιγου*, from *whipping*, because boys were whipped be-

fore the altar of the goddess. These boys, called *Bomonicæ*, were originally free born Spartans, but in the more delicate ages they were of mean birth, and generally of a slavish origin. This operation was performed by an officer in a severe and unfeeling manner; and that no compassion should be raised, the priest stood near the altar with a small light statue of the goddess, which suddenly became heavy and insupportable if the lash of the whip was more lenient or less rigorous. The parents of the children attended the solemnity, and exhorted them not to commit any thing either by fear or groans, that might be unworthy of Laconian education. These flagellations were so severe, that the blood gushed in profuse torrents, and many expired under the lash of the whip, without uttering a groan, or betraying any marks of fear. Such a death was reckoned very honourable; and the corpse was buried with much solemnity with a garland of flowers on its head. The origin of this festival is unknown. Some suppose that Lycurgus first instituted it to inure the youth of Lacedæmon to bear labour and fatigue, and render them insensible to pain and wounds. Others maintain, that it is a mitigation of an oracle, which ordered that human blood should be shed on Diana's altar; and according to their opinion, Orestes first introduced that barbarous custom, after he had brought the statue of Diana Taurica into Greece. There is another tradition which mentions, that Pausanias, as he was offering up prayers and sacrifices to the gods, before he engaged with Mardonius, was suddenly attacked by a number of Lydians, who disturbed the sacrifice, and were at last repelled with staves and stones, the only weapons with which the Lacedæmonians were provided at that moment. In commemoration of this, therefore, that whipping of boys was instituted at Sparta, and after that the Lydian procession.

DIAMETER, in geometry, a right line passing thro' the centre of a circle, and terminated at each side by the circumference thereof. See GEOMETRY.

Diamastigosis,
Diameter.



DIRECTIONS FOR PLACING the PLATES OF VOL. V.

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CXXXIX.	-	69	CLI.	571
CXL.	-	72	CLII.	580
CXLI.	-	76	CLIII.	584
CXLII.	-	89	CLIV.	595
CXLIII.	-	112	CLV.	688
CXLIV. }	-	284	CLVI.	697
CXLV. }	-	345	CLVII.	753
CXLVI.	-		CLVIII.	787
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CXLVII. }	-	444	CLX.	793
CXLVIII. }	-	480	CLXI.	804
CXLIX.	-			

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